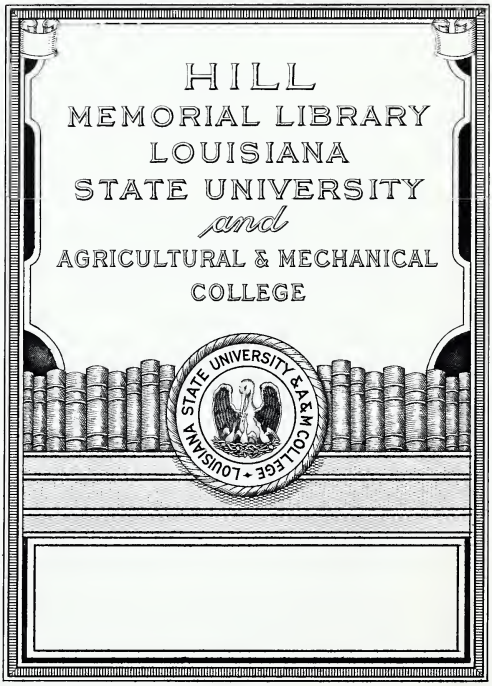
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Fifteenth President of the American Sugar Cane League

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ADDRESS OF RETIRING PRESIDENT MURPHY J. FOSTER TO THE ANNUAL MEETING OF THE AMERICAN SUGAR CANE LEAGUE

Members of the American Sugar Cane League:

I come before you today to deliver to you my second Annual Address.

In accordance with the custom of this organization which changes its presiding officer each two years I shall in a few minutes step aside to make way for my successor and I can assure him now, whoever he may be, that he will have the support and cooperation of a very splendid body of men, all of whom have in their hearts a sincere desire for the prosperity and continuance, for many years to come, of the sugar industry of the State of Louisiana.

During my term of office I have learned a great deal about this industry with which as an individual sugar planter I did not have the opportunity to become familiar. I learned that while we who are engaged in it have different viewpoints on different local questions we all are united as one man in our determination to so carry on the work of producing sugar here in this State that it shall survive and prosper as long as it is humanly possible for us to make it do so. We are ready and eager to adopt new ideas and new methods and new inventions and work together for the welfare of our industry.

The crop of 1948 (our last campaign witnessed the grinding in Louisiana of the largest crop of sugar cane since 1943 in spite of a growing season that was rather unfavorable from a weather standpoint. We ground in the crop year of 1948 5,256,644 tons of sugarcane and we produced 397,293 tons of sugar raw value. In the year 1943 we ground 5,388,000 tons of cane and we produced 431,970 tons of sugar. In 1943 we averaged 164.06 lbs. 96° sugar per ton and in 1948 we averaged 146.19 lbs.

This summary of our production brings me right away to one of the most important points in this annual address, which is the serious fact that the yield of sugar per ton of cane averaged last grinding only 146.19 pounds per ton, a figure so low that it cannot be accounted for by ineffective operation of our factories and it must be accounted for in some other way. The low yields in many cases included factories well equipped to do better work and were not confined to just a few mills possessing inferior installations. The matter has been widely discussed and the scientists of the Louisiana State University have carefully and diligently investigated it and it is said that an unusual amount of trash delivered along with cane to the mills was one of the outstanding causes of low yield of sugar during the recent grinding. The acceptance by the mills of such an uncommon amount of trash is accounted for by various explanations, prominent among those alleged being the vastly increased percentage of machine cut cane which brought about a larger delivery of trash to the mills than hand cut cane did. The loss in sugar, whatever the cause, was so serious that I hope this unhappy experience will not be allowed to occur again if it is possible to avoid it and with cane growers and mill owners brought now to a full realization of the unhappy results to both that may attend future milling of cane containing more than the standard per cent of trash I look confidently to the application of steps to prevent this costly experience in the ap-

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proaching and future grindings. The scientists at L. S. U. are being of great help in solving this problem, but the whole hearted cooperation of both growers and mill owners is an indispensable factor in the matter.

There are among our members many men who have contributed in an outstanding way toward the welfare of the Louisiana sugar industry and a number of years ago the happy idea occurred to our Executive Committee of that day to bestow upon these men some special mark of distinction. A resolution was adopted by our Executive Committee to the effect that from time to time there should be bestowed, on those selected for the honor, a Life Membership in the League. Such Life Memberships have been bestowed during the past twelve months on Mr. Clarence J. Bourg, Manager of the Leagues' Washington office, Mr. Marcel Voorhies, the League's General Manager, and Mr. Stephen C. Munson, one of the founders of the League in 1922, and at present able Chairman of the important Contact Committee. None has more richly deserved the honor than these three gentlemen.

I wish at this time to make a statement about the *Displaced Persons* because our industry has been unjustly criticized by some individuals and articles appearing in magazines with nationwide circulation regarding our treatment of these unfortunate people. By this general classification, Displaced Persons, there were grouped or designated during the latter part of my term of office which is now ending a number of people from various countries in Europe who represented a small percentage of the helpless victims of the second great European war and who were unable to make a living in their home countries. Agencies of the United States Government, cooperating with similar well intentioned groups abroad sought during the year now drawing to a close to locate large bodies of these victims of World War II in the United States and secure for them here means of making a living. A considerable number were sent to the Louisiana sugar district where they were housed on sugar plantations and given employment at the wages and under the conditions that are prevalent here under the ruling of the U. S. Government. As is always the case in handling groups of foreigners here some were satisfied and tried to mold themselves to fit the conditions here and make a permanent home here. Others were dissatisfied and moved away to other parts of the United States. Just what percentage still remain I do not know. In so acting these foreign immigrants followed in the footsteps of previous groups of foreigners who have been brought here under an arrangement with the U. S. Immigration Authorities in years past. When they get here they are free agents and may stay or go elsewhere as they see fit. As a rule such transplanting movements have been only partially successful and have not justified themselves except where the people were carefully screened for fitness before being brought here.

New Cane Varieties

This year there will take place a new distribution of cane varieties something that was started after the Louisiana sugar industry descended to almost complete elimination in the year 1926 when, due to the ravages of the mosaic disease, the sugar production here fell as low as 47,000 tons. Beginning then, the introduction of new and disease resistant varieties has proceeded steadily until now our production has returned to normalcy. The American Sugar Cane League has played a distinctly leading part in this recovery, aided scientifically by the

experts of the United States Department of Agriculture and the Louisiana Experiment Station.

The two varieties to be released this year are designated as C.P. 44-101 of which some 750 tons will be available for distribution and C.P. 44-135 of which about 1350 tons will be available. The distribution as in all previous years, will be conducted by the American Sugar Cane League. All such distributions are a major undertaking and every factor affecting fairness and impartiality and convenience to the recipients is observed. The cane has been grown in 56 locations in Louisiana which is the largest number of locations involved in any previous distribution. This makes the process more convenient to the prospective applicants than has been the case at any time previously.

Our Washington Office

Washington has been fairly quiet on legislation in view of the fact that the Sugar Act is for a term of five years, beginning January 1, 1948. There has been some discussion, from time to time, of amendments to the Act, but the tendency has been to keep it intact at least for the five years.

Under the Sugar Act, there is to be held a public hearing each year, which will be in December of 1949, for the purpose of discussing at some length what the consumption estimate should be in 1950. This is very important because, as happened for the 1948 estimate, Secretary of Agriculture Anderson was unduly impressed with the fears and warnings of the large industrial users, who suggested that the consumption estimate should be 8,500,000 tons. Secretary Anderson actually established a consumption estimate of 7,800,000 tons, which was far too large; with the result that the price of raw sugar actually went down to 5c in May of 1948. We have never recovered from the shock, because when the price of sugar goes down, it descends very quickly, but when it rises, it is a very slow process.

Consumption Estimates—For 1949, the domestic sugar industry made strong representations with the result that a much more reasonable consumption estimate was arrived at, but the price has been very slow in adjusting itself, having only recently reached 6.05¢ for raw sugar and 7.95¢ for refined sugar. Secretary Brannan and Mr. Lawrence Myers, Director of the Sugar Branch, have been very courageous and insistent in the face of very strong pressure being applied by the large industrial users, and, only to a less degree, by the Atlantic Seaboard refiners. Secretary Brannan evidently intends to maintain his vigorous attitude, including a recognition that the price of raw sugar was 6.32¢ and for refined sugar 8.40¢ under the OPA when price controls were removed. We have not yet succeeded in getting back up to those levels. Sugar was probably the only commodity which did not command an increase in price after decontrol.

Congressional Help—We have had the very active assistance and sponsorship of our two Senators, Ellender and Long. In the House, we have had excellent help, led by Congressman Hale Boggs and Congressman Ed Willis, but with the unanimous support of the other six Congressmen from Louisiana: Eddie Hebert, Jimmy Morrison, Henry Larcade, Leonard Allen, Overton Brooks and Otto Passman. All Congressmen and Senators from Louisiana have been very active and alert in their support and defense of the Louisiana sugar industry in co-ordination with other areas of domestic producers.

Fertilizer—We have continued to maintain our fight for an adequate supply of fertilizer to be handled for

the benefit of Louisiana sugarcane growers. Of course, the success of this fight has been in proportion to the early ordering of fertilizer and the willingness of our planters to accept fertilizer as early as the companies may be willing to deliver. The League's efforts in the matter of procuring a supply have been of great help to our sugar industry and contributed much toward doing away with yearly anxiety about the next crop on this score.

Labor Assistance—On foreign labor, the Louisiana planters have been very well served by our Labor Committee, under the active leadership of Chairman Charles A. Farwell, and the active personal agency of Howard Bond. Last year, foreign labor was obtained from the British West Indies under satisfactory conditions but used by relatively few Louisiana planters. This year we are hopeful that more planters will avail themselves of an agreement which Howard Bond has made with the growers of Wisconsin, Illinois and Indiana, whereby the cost of transportation may be divided fairly and equitably among all growers. These laborers, mostly Jamaicans, are being accepted as the farmers of the North have finished their activities in the summer, and they can be returned to the same Northern farmers or others after the use of such laborers shall have been completed, probably in January. It requires quite a while to obtain a certificate for laborers, starting with the State Employment Service, plus the United States Immigration & Naturalization Service and the United States Employment Service, and all growers who plan to use them this year on the exceptionally large crop which we have in the field, should make application as early as possible, as it is probable that the source of these foreign laborers already in the U. S. will run out and it will cost a great deal more to obtain them directly from the British West Indies.

Wage and Hour Law—Our chief fight this year in Congress has been on the Fair Labor Standards Act. Efforts were made earlier in the Session by the Administration to obtain action on several amendments, the most important of which was the increase of the minimum wage rate from 40¢ to 75¢ an hour. For a time, the movement was prevented in the House and the whole subject matter was re-committed to the Committee on Labor. Finally, after a great many efforts, the House adopted a motion made by Congressman Lucas of Texas, which established the 75¢ minimum and several amendments to increase the number of exemptions. In this respect, Northern Republicans, who had agreed to a coalition with Southern Democrats, accepted the 75¢ minimum (in lieu of the 65¢ rate) because they thought this might have the effect of equalizing wages and keeping more textile manufacturing plants in the North.

Of particular interest to all processors was the continuation of the provision of Section 7 (c) which grants an exemption to the processing of sugarcane into sugar and syrup, and allows such processors an exemption as to hours or from overtime. This leaves the minimum wage rate at 75¢, applicable to processors. Likewise, the provisions of Section 7(b) (3) and Section 13(a) (10) are also available in the event that any processor should desire to avail himself of either. Agriculture is definitely exempt in the Fair Labor Standards Act from both hours and wages provisions, under any circumstances, and we must bear in mind that higher wages in the factory add pressure on the wages paid in the field. But my worry is this; when the application of 75¢ minimum in the factory takes effect it will automatically add an average of $50,000 per year to the processor's cost. This additional expense

can be compensated only by a substantial increase over the present price of sugar.

It is up to the Louisiana sugar industry to work with other domestic areas, especially the beet sugar people, to present a solid front on price legislation and all other interests which we have in common with them.

On my visit to Washington in August, in the company of Mr. Spencer G. Todd, at the invitation of the beet growers, we had among numerous other activities about a half hour conference with the Secretary of Agriculture, who was very cordial. The Secretary declared that every time the price of sugar is raised the large industrial consumers make strenuous objections. It was obvious as so frequently has happened that Louisiana and Florida will be unable to accomplish all we need legislatively at Washington alone and must be in alliance or agreement with the other domestic sugar interests to exert the necessary pressure and influence. This joint pressure unfortunately may not be obtainable in some cases, but in all cases where it can be exerted it will be of such inestimable value that we should try to bring it about just as much as we can. I have reiterated this because I am so impressed regarding its importance. The skill and good judgment of our Washington office in arranging for Washington collaboration of domestic sugar interests is one of its most important functions.

On August 1st of this year the League was fortunate in acquiring the services of Dr. Rene John Steib as Assistant Manager. Dr. Steib is a native Louisianian, having been born in St. James Parish in 1918. He knows Louisiana and especially the sugar producing portion of it and was awarded a Bachelor of Science degree in the School of Vocational Education at the Louisiana State University in 1941. He served overseas during the second World War and in 1947, having returned to L. S. U., he received his Master of Science degree in Plant Pathology and Botany and in 1949 was awarded a Ph. D. degree in Plant Pathology, majoring in sugarcane research. He will be of very great assistance to our General Manager, Mr. Marcel Voorhies.

In conclusion, I wish to thank again my fellow officers, the members of the Executive Committee, and each of the other League committees as well as the personnel of our Washington and New Orleans offices for their help and consideration during my term of office. Also to my successor I offer congratulations and pledge to him my complete cooperation in the future.

FAIR AND REASONABLE PRICES FOR THE 1949 CROP OF LOUISIANA SUGARCANE

TITLE 7—AGRICULTURE
CHAPTER VIII — Production and Marketing Administration
(Sugar Branch)
Subchapter I—Determination of Prices
(Sugar Determination 874.2)
PART 874—SUGARCANE, LOUISIANA
1949 CROP

Pursuant to the provisions of Section 301(c)(2) of the Sugar Act of 1948 (herein referred to as "Act"), after investigation, and due consideration of the evidence presented at the public hearing held in Thibodaux, Louisiana, on July 15, 1949, the following determination is hereby issued:

Section 874.2 *Fair and reasonable prices for the* 1949 *crop of Louisiana sugarcane.* Processor-pro-

ducers of sugarcane in Louisiana who apply for payments under the Act shall be deemed to have complied with the provisions of Section 301(c)(2) of the Act with respect to the 1949 crop, if the requirements of this determination are met.

(a) *Definitions*:

For the purpose of this determination, the term—

(1) "price of raw sugar" means the price of 96° raw sugar (duty paid basis, delivered) quoted by the Louisiana Sugar Exchange, Inc.; except that if the Director of the Sugar Branch determines that such price does not reflect the true market value of sugar, because of inadequate volume or other factors, he may designate the price to be effective under this determination.

(2) "price of blackstrap molasses" means the price per gallon of blackstrap molasses quoted by the Louisiana Sugar Exchange, Inc.; except that if the Director of the Sugar Branch determines that such price does not reflect the true market value of blackstrap molasses, because of inadequate volume or other factors, he may designate the price to be effective under this determination.

(3) "trash" means green or dried leaves which may be removed with a cane knife in a manner similar to hand stripping under field conditions, loose sugarcane tops, attached sugarcane tops at or above the green leaf roll, dirt and all other extraneous material.

(4) "salvage sugarcane" means sugarcane containing either less than 9.5 percent sucrose in the normal juice or less than 68 purity in the normal juice.

(5) "actual sugarcane" means sugarcane as delivered by a producer to a processor-producer.

(6) "standard sugarcane" means sugarcane, free of trash, containing 12 percent sucrose in the normal juice with a purity of at least 76.50 but not more than 76.99.

(b) *Basic price*:

(1) The basic price for standard sugarcane shall be not less than $1.045 per ton for each one cent of the average price of raw sugar determined in accordance with whichever of the following options is agreed upon: (i) the simple average of the daily prices of raw sugar for the week in which the sugarcane is delivered; or (ii) the simple average of the weekly prices of raw sugar for the period October 7, 1949 (or the Friday within the first week of actual trading), through January 26, 1950: *Provided*, That the average price of raw sugar as determined under (i) or (ii) above may be reduced by not more than the following:

A. .065 cent for mills located north of Bayou Goula between the Atchafalaya and Mississippi Rivers and southeast of New Iberia west of the Atchafalaya River; or

B. .10 cent for mills located north and west of New Iberia west of the Atchafalaya River.

(2) The basic price for salvage sugarcane shall be as agreed upon between the processor-producer and the producer.

(c) *Conversion of Actual Sugarcane to Standard Sugarcane*:

Except for salvage sugarcane actual sugarcane shall be converted to standard sugarcane as follows:

(1) By deducting the weight of trash from the combined weight of sugarcane and trash delivered:

(2) By multiplying the net quantity of sugarcane determined pursuant to subparagraph (1) of this paragraph (c) by the applicable quality factor in the table on the following page:

and (3) by multiplying the adjusted quantity determined pursuant to subparagraph (2) of this paragraph (c) by the applicable purity factor in the table on page 10:

Percent sucrose in normal juice	Standard sugarcane quality factor[1]
9.5	.60
10.0	.70
10.5	.80
11.0	.90
11.5	.95
12.0	1.00
12.5	1.05
13.0	1.10
13.5	1.15
14.0	1.20
14.5	1.25

[1] Intermediate points within the scale are to be in proportion. Points above 14.5 percent sucrose in normal juice are to be in proportion to the immediately preceding interval.

(d) *Molasses payment*:

On each net ton of sugarcane ground (excluding trash) there shall be paid an amount equal to the product of one-half of the excess over 6 cents of the average price of blackstrap molasses per gallon and 6½. The average price of blackstrap molasses shall be either the simple average of the daily prices for the week in which the sugarcane is delivered or the simple average of the weekly prices of blackstrap molasses for the period of October 7, 1949 (or the Friday within the first week of actual trading) through January 26, 1950, as agreed upon between the processor-producer and the producer.

(e) *General*:

(1) The sucrose and purity of the normal juice shall be determined by an acceptable method of analysis on sugarcane from which the trash has been removed.

(2) Because of decreased boiling house efficiency deductions may be made from the payment for frozen sugarcane accepted by the processor-producer provided such deductions are at rates not in excess of 1.5 percent of the payment, computed without regard to the molasses payment, for each 0.1 cc. of acidity above 2.50 cc. of N/10 alkali per 10 cc. of juice but not in excess of 4.75 cc., (intervening fractions are to be computed to the nearest multiple of 0.05 cc.). Frozen sugarcane testing in excess of 4.75 cc. of acidity shall be considered as having no value. Sugarcane shall not be considered as frozen, even after being subjected to freezing temperature, unless and until there is evidence of damage having taken place because of the freeze, such evidence to be certified by the Louisiana State Office of the Production and Marketing Administration.

(3) Costs of hoisting and weighing sugarcane, which were absorbed by the processor-producer for the 1948 crop, shall be absorbed by the processor-producer for the 1949 crop; but nothing in this subparagraph shall be construed as prohibiting negotiations with respect to the level of such absorptions, subject, upon appeal, to review by the Director of the Sugar Branch if the parties fail to reach agreement.

(4) Allowances made to producers for transporting sugarcane from the customary delivery points to the mill, which were made by the processor-producer for the 1948 crop, shall be made by the processor-producer for the 1949 crop; *Provided,* That nothing in this subparagraph shall be construed as requiring the processor-producer to make allowances to producers in excess of the actual costs or rates charged by a commercial carrier for the customary method of transportation; *Provided, further,* That where the only available practicable means of transportation are rail facilities and the distance to the nearest mill is in excess of 50 miles, the cost of transporting sugarcane may be shared by the processor-producer and the producer by agreement, subject, upon appeal, to review by the Director of the Sugar Branch if the parties fail to reach agreement.

(5) If a processor-producer and the producers delivering sugarcane to such processor-producer agree upon a plan for the hiring of inspectors whose duties shall be (i) to inspect fields of sugarcane, suggest proper methods of harvesting, and obtain adherence to cutting and delivery schedules, and (ii) to deter-

STANDARD SUGARCANE PURITY FACTOR[1]

Purity of Normal Juice		Percent Sucrose in Normal Juice															
		At Least 9.50	9.70	9.90	10.10	10.30	10.50	11.00	11.50	12.00	12.50	13.00	13.50	14.00	14.50	15.00	15.50
At Least	But not more than	But not more than 9.69	9.89	10.09	10.29	10.49	10.99	11.49	11.99	12.49	12.99	13.49	13.99	14.49	14.99	15.49	15.99
68.00	68.24	**1.000**	.989	.978	.967	.956	.945	.936	.929	.922	.915	.908	.901	.894	.887	.880	.873
68.25	68.49	1.005	.993	.982	.971	.960	.949	.941	.934	.927	.920	.913	.906	.899	.892	.885	.878
68.50	68.99	1.010	.998	.987	.976	.965	.954	.946	.939	.932	.925	.918	.911	.905	.899	.893	.887
69.00	69.49	1.015	1.003	.992	.981	.970	.959	.950	.943	.936	.929	.922	.915	.909	.903	.897	.891
69.50	69.99	1.021	1.009	.997	.986	.975	.964	.955	.948	.941	.934	.927	.920	.914	.908	.902	.896
70.00	70.49	1.025	1.013	1.001	.990	.979	.968	.960	.953	.945	.938	.931	.924	.918	.912	.906	.900
70.50	70.99	1.030	1.018	1.006	.995	.984	.973	.965	.958	.950	.943	.936	.929	.923	.917	.911	.905
71.00	71.49	1.035	1.023	1.011	.999	.988	.977	.969	.962	.954	.947	.940	.933	.927	.921	.915	.909
71.50	71.99	1.040	1.028	1.016	1.004	.993	.982	.974	.966	.959	.951	.945	.938	.932	.926	.920	.914
72.00	72.49	1.045	1.033	1.021	1.009	.998	.987	.978	.970	.963	.955	.949	.942	.936	.930	.924	.918
72.50	72.99	1.050	1.038	1.026	1.014	1.003	.992	.983	.975	.967	.960	.954	.947	.940	.934	.928	.922
73.00	73.49	1.055	1.043	1.031	1.019	1.007	.996	.987	.979	.971	.964	.958	.951	.944	.938	.932	.926
73.50	73.99	1.060	1.048	1.036	1.024	1.012	**1.000**	.991	.984	.976	.968	.962	.955	.948	.942	.936	.930
74.00	74.49	1.065	1.052	1.040	1.028	1.016	1.004	.995	.988	.980	.972	.966	.959	.952	.946	.940	.934
74.50	74.99		1.057	1.044	1.032	1.020	1.008	**1.000**	.992	.984	.977	.970	.963	.956	.950	.944	.938
75.00	75.49		1.062	1.049	1.036	1.024	1.012	1.004	.996	.988	.981	.974	.967	.960	.954	.948	.942
75.50	75.99			1.054	1.041	1.028	1.016	1.008	**1.000**	.992	.985	.978	.971	.964	.958	.952	.946
76.00	76.49			1.059	1.046	1.033	1.020	1.011	1.004	.996	.988	.981	.974	.967	.961	.955	.949
76.50	76.99				1.051	1.038	1.025	1.015	1.008	**1.000**	.992	.985	.978	.971	.965	.959	.953
77.00	77.49				1.054	1.041	1.028	1.019	1.011	1.004	.996	.989	.981	.975	.969	.963	.957
77.50	77.99					1.045	1.032	1.023	1.015	1.008	**1.000**	.993	.985	.979	.973	.967	.961
78.00	78.49					1.049	1.035	1.027	1.019	1.011	1.003	.996	.989	.982	.976	.970	.964
78.50	78.99						1.039	1.031	1.023	1.015	1.007	**1.000**	.993	.986	.980	.974	.968
79.00	79.49						1.042	1.035	1.026	1.018	1.010	1.003	.996	.989	.983	.977	.971
79.50	79.99							1.039	1.030	1.022	1.014	1.007	**1.000**	.993	.987	.981	.975
80.00	80.49							1.043	1.033	1.025	1.017	1.010	1.003	.996	.990	.984	.978
80.50	80.99								1.037	1.029	1.021	1.014	1.007	**1.000**	.994	.988	.982
81.00	81.49								1.040	1.032	1.024	1.017	1.010	1.003	.997	.991	.985
81.50	81.99									1.036	1.028	1.021	1.014	1.006	**1.000**	.994	.988
82.00	82.49									1.039	1.032	1.024	1.017	1.009	1.003	.997	.991
82.50	82.99										1.035	1.027	1.020	1.013	1.007	**1.000**	.995
83.00	83.49										1.038	1.030	1.023	1.016	1.010	1.004	.998
83.50	83.99											1.033	1.027	1.019	1.013	1.007	**1.000**
84.00	84.49											1.036	1.030	1.022	1.016	1.010	1.004
84.50	84.99												1.033	1.025	1.019	1.013	1.007
85.00	85.49													1.028	1.022	1.016	1.010

[1] Factors applicable to higher sucrose and purity of the normal juice than shown in this table shall be determined by the same method of calculation used to compute the factors specified and shall be furnished by the Louisiana State Office of the Production & Marketing Administration, Baton Rouge, La. upon request.

mine the trash content of all sugarcane delivered to a processor-producer, and, if the control of such inspectors is exercised jointly by the processor-producer and producers or by a general committee of processors and producers, there may be deducted from the price per ton of standard and salvage sugarcane an amount equal to one-half of the cost of such inspection but not in excess of 1½ cents per ton of such sugarcane. Such deductions may not be made until a statement in writing setting forth the proposed plan jointly signed by authorized representatives of producers and processors has been filed with and approved by the Louisiana State Office of the Production and Marketing Administration.

(6) The processor-producer shall not reduce the returns from the 1949 crop of Louisiana sugarcane to the producer below those determined herein through any subterfuge or device whatsoever.

Statement of Bases and Considerations

(a) *General*

The foregoing determination provides fair and reasonable prices to be paid by a processor-producer (i. e., a producer who is directly or indirectly a processor of sugarcane—hereinafter referred to as "processor") for sugarcane of the 1949 crop purchased from other producers. It prescribes the minimum requirements with respect to prices which must be met as one of the conditions for payment under the Act. In this statement the foregoing determination, as well as determinations for prior years, will be referred to as "price determination", identified by the crop year for which effective.

(b) *Requirements of the Act*

In determining fair and reasonable prices, the Act requires that public hearings be held and investigations made. Accordingly, a public hearing was held in Thibodaux, Louisiana, on July 15, 1945, at which time interested parties presented testimony with respect to fair and reasonable prices for the 1949 crop of sugarcane. In addition, investigations have been made of the conditions relating to the sugar industry in Louisiana. In this price determination consideration has been given to the testimony presented at the hearing and to information resulting from the investigations.

(c) *Background*

Determinations of fair and reasonable prices for sugarcane in Louisiana have been issued for each crop beginning with the 1937 crop. The 1937 price-determination approved the basic pricing structure contained in sugarcane purchase contracts agreed upon between producers and processors. From that time until the present, price determinations have continued in effect, with only minor modifications, the historic basic pricing structure. Previous price determinations have embodied, in general, the following provisions:

(1) The basic price for standard sugarcane was $1.00 per ton for each 1 cent of the average price per pound of raw sugar when such price was 3½ cents per pound. This basic price was subject to upward adjustments to a maximum rate of $1.03 per 1 cent of price at and above 3¾ cents per pound and to downward adjustments to a minimum of 91 cents per 1 cent of sugar price at and below 2¾ cents per pound.

(2) Settlements were based on the average of the daily quotations of 96° raw sugar (duty paid basis, delivered) for the week in which sugarcane was delivered or the average of weekly quotations for the season.

(3) Standard sugarcane was defined as sugarcane containing a stated range of sucrose in normal juice depending on the contract in use within districts of the area. There were approximately seven

contracts in use with three different par brackets. Premiums and discounts for sugarcane of higher or lower sucrose than the stated range were as provided in the several contracts. Generally, the contracts provided for a 1 percent premium and a 2 percent discount for each 1/10 percent change in the normal juice sucrose.

(4) During the 1943 through 1947 crops, a trash tolerance of 3 percent of the weight of sugarcane delivered was permitted by administrative action. In the 1948 price determination, the definition of standard cane was revised to provide weight deductions for trash in excess of 3 percent.

(5) Prior to 1941 returns from molasses were retained by the processor. However, due to significant increases in the price of this product, the 1941 price determination provided for producer participation to the extent of 50 percent of the proceeds from molasses in excess of 8 cents per gallon. Subsequent price determinations have continued this provision.

(6) Deductions were permitted in the price paid for frozen sugarcane at a rate not in excess of 3.775 percent of the payment for each .25 cc. of acidity above 2.25 cc. but not in excess of 4.50 cc.

In recent years, members of the Louisiana Grower-Processor Committee have made joint recommendations with respect to purchase contracts at fair price hearings. However, prior to the fair price hearing held on July 15, 1949, the members of the Grower-Processor Committee were unable to agree upon a joint recommendation for the 1949 crop. Each group, therefore, made separate recommendations at the hearing. Although the recommendations of both growers and processors had as their general objective the increasing of sugar recoveries to prewar levels, there were considerable differences in the views of each as to the proper methods which should be adopted to accomplish that objective. Following a thorough study of the recommendations submitted by producers and processors at the public hearing, analysis of data on returns, costs and profits of the Louisiana sugar industry compiled by the Louisiana State University and supplemented by data presented at the hearing, past production and manufacturing statistics of the area and consideration of other economic information, a proposed price determination was developed. Because of the significant changes in the proposed determination as compared with previous price determinations, representatives of the Department met with members of the Grower-Processor Committee in New Orleans on August 17, 1949, for the purpose of obtaining their views as to practicability, effectiveness and equity of the proposed determination. The views obtained at the meeting were given consideration in formulating the 1949 price determination.

(d) 1940 *price determination*

The 1949 price determination differs from the 1948 price determination in the following major respects:

(1) *Basic price*—The basic price per ton of standard sugarcane has been increased to $1.045 for each 1 cent of the average price of raw sugar.

(2) *Standard sugarcane*—The definition of standard sugarcane has been revised to mean trash-free sugarcane, the normal juice of which contains 12 percent sucrose with a purity of at least 76.50 but not more than 76.99. Except for salvage sugarcane, factors for sucrose and purity of the normal juice are provided for converting actual sugarcane to standard sugarcane.

(3) *Salvage sugarcane*—The definition of salvage sugarcane has been revised to include sugarcane, the normal juice of which contains either less than 9.5 percent sucrose

or less than 68 purity. The price payable for such sugarcane is to be that agreed upon between the producer and processor.

(4) *Trash*—Trash is defined to include green or dry leaves which may be removed with a cane knife in a manner similar to hand stripping under field conditions, loose sugarcane tops, attached sugarcane tops at or above the green leaf roll, dirt and all other extraneous material.

(5) *Molasses payment*—The provisions of the molasses payment have been revised to permit participation by producers in the returns from blackstrap molasses above the price of 6 cents per gallon rather than 8 cents per gallon as in previous price determinations. The sharing of proceeds from molasses above this point between producers and processors remains unchanged.

(6) *Allowance for freight differential*—In computing the price payable per ton of standard sugarcane the determination provides for reductions from the average price of raw sugar for the higher cost of shipping raw sugar to New Orleans from mills located in high cost freight districts.

(7) *Acidity*—The provision permitting deductions from the price payable for frozen sugarcane has been revised to provide for a reduction not in excess of 1.5 percent of the payment per ton of sugarcane for each .1 cc. of acidity above 2.50 cc. of N/10 alkali per 10 cc. of juice but not in excess of 4.75 cc. Frozen sugarcane testing in excess of 4.75 cc. of acidity is considered to have no value.

(8) *Sucrose and purity tests*—The analysis of the sucrose and purity of the normal juice is to be made in an acceptable manner on the basis of trash-free sugarcane instead of on actual sugarcane.

(9) *Transportation*—The allowances made to producers for transporting sugarcane from the customary delivery points to the mill, which were made by the processor for the 1948 crop shall be made by the processor for the 1949 crop. This provision is not to be construed as requiring the processor to make allowances to producers in excess of the actual cost or of rates charged by a commercial carrier for the customary method of transportation.

(10) *Field inspection and trash determination*—Authority is provided for the sharing between producers and processors of the actual cost of field inspections and of trash determinations, if the processor and the producers delivering sugarcane to such processor agree upon such a plan, and if the inspectors are under the joint control of the processor and producers or a general committee of processors and producers. Under this provision the amount chargeable to the producer may not exceed 1½ cents per ton of standard and salvage sugarcane.

Because available information indicates that low recoveries of sugar in Louisiana during recent years are attributable primarily to stale, trashy sugarcane, the chief objective of this determination is to provide a mechanism through which producers will be paid a price for sugarcane commensurate with the quality of the sugarcane delivered. To accomplish this the basic pricing factor for fresh, clean sugarcane of standard quality has been increased, premiums have been provided for sugarcane of higher than standard quality and discounts provided for sugarcane of lower than standard quality. Obviously, if sugarcane of poor quality is delivered the extraction of sugar will not improve. Therefore, it is believed that the premiums provided for high quality sugarcane will provide higher profits to producers even though added costs might be incurred and that settlements will more accurately reflect the milling value of sugarcane. Improvement in sugar recoveries is

imperative if the Louisiana sugar industry is to become more profitable.

At the fair price hearing both producer and processor representatives recommended that a single par point be adopted to replace the par sucrose brackets. The processors recommended the adoption of one point for all contracts, whereas producers recommended the adoption of the midpoint of the present par bracket of each contract. An examination of sugar manufacturing reports for the past 12 years shows that sugarcane delivered has averaged about 12 percent sucrose in the normal juice and that the sugar recovered from such sugarcane, adjusted to a trash-free basis averaged 160.7 pounds of sugar per ton of sugarcane. This analysis served as the basis for adopting 12 percent sucrose in the normal juice as the par point for standard sugarcane. Premiums and discounts above and below this point, as set forth in the quality scale of the determination for higher and lower sucrose sugarcane, have been established on the basis of indicated sugar recovery at the various levels. These data show that sugar recoveries decline twice as fast below 11 percent sucrose as they increase above that point.

The establishment of a single par point of 12 percent sucrose does not require the elimination of more favorable special contracts which have been used in local districts. This determination prescribes the minimum requirements which a processor must meet to be eligible for payments under the Act. Therefore, in those instances where special contracts have been in use there is nothing to preclude an agreement between producers and processors for the continuation of the more favorable features of such contracts.

A definition of trash has been included in the determination for the first time. It defines trash as leaves, tops, dirt and all other extraneous material and also prescribes the method by which the leaves are to be removed from the stalk in determining the trash content of sugarcane. Under the definition, green or dried leaves are to be removed by using a cane knife in a manner similar to that used in hand stripping sugarcane under field conditions. It is not intended that each and every particle of adhering leaf be removed but only that part which would ordinarily be removed by a sugarcane cutter in the field under normal conditions.

Settlements for salvage sugarcane under previous price determinations were governed by the tons of the applicable purchase contract. This determination, however, provides that settlement for such sugarcane may be as agreed upon between producers and processors. Salvage sugarcane under this determination is sugarcane containing either less than 9½ percent sucrose in normal juice or less than 68 purity in the normal juice. Heretofore, purity was not considered in the definition of salvage sugarcane.

The purity scale of this determination has been devised on the basis of actual test data at the mill for certain sucrose points and extended to other points within the scale. The requirement that sucrose and purity tests be made on the basis of trash-free sugarcane will more accurately reflect the standards desired under this determination.

The increase in the basic price to $1.045 per ton of standard sugarcane for each one cent of the price per pound of sugar has been made to assure a fair price to producers for clean, fresh sugarcane. If producers deliver sugarcane of standard quality, the present pricing factor will return approximately the same percentage of total returns as they have received in the past five years. However, if the improve the quality of sugarcane de

ivered, as anticipated, as a result of the premiums provided for high quality sugarcane, the average price for a ton of sugarcane should be higher than in previous years. On the other hand, if the quality of the sugarcane is lower, the price for a ton of sugarcane could be lower. Since the sugarcane pricing factor was calculated by using the total calculated returns to the industry, it was necessary to reduce the point at which producers participate in molasses proceeds (from 8 to 6 cents per gallon) to correspond to the price used in the calculation with a minor allowance for price variations. If molasses prices should rise above 6 cents per gallon, total proceeds will increase and growers will participate in the higher returns. The pricing factors applicable to lower sugar prices contained in previous price determinations have been eliminated for the 1949 crop as it is impossible to fully anticipate the effects that substantial changes in general economic conditions which usually accompany major changes in price might have on relative costs and other pertinent factors.

In prior years the difference in the par range of sucrose for the two major contracts represented an attempt to correct for the difference in freight on raw sugar from mills located in the eastern and western sections of the sugarcane producing area to New Orleans. Under these contracts producers absorb all of the freight differential. This determination continues the principle of recognizing freight differentials established in prior contracts but provides for direct adjustments to the price of raw sugar to compensate for the freight differentials. It also recognizes three distinct freight cost areas rather than two. The adjustments result in the sharing of the freight differentials of .065 and .10 cent per pound represent the increased cost of freight on raw sugar from the high cost freight districts to New Orleans above the freight costs for shipments originating in the district east of the Atchafalaya River and south of Bayou Goula.

At the public hearing testimony was presented to the effect that the normal acidities of the varieties of sugarcane currently milled in Louisiana are higher than the normal acidities of varieties that were milled 10 years ago when adjustments for acidity first were permitted. This testimony has been confirmed by acidity tests made at the U. S. Department of Agriculture Experiment Station at Houma, Louisiana. The provision in the determination covering deductions for excess acidity conforms to the results of these tests.

At the public hearing a producer representative suggested that a system of inspection of fields be inaugurated under the joint supervision of producers and processors. The purpose of this suggestion was to adopt a plan to improve the quality of sugarcane delivered by carefully supervising the harvesting and delivery of sugarcane to the mills. It was further stated that if a satisfactory plan could be devised producers would be willing to pay a fair share of the costs entailed. Under this determination the adoption of such a plan is permissive, although it is believed that a properly administered plan of this nature would prove of inestimable value to the industry.

Accordingly, I hereby find and conclude that the foregoing price determination is fair and reasonable and will effectuate the price provisions of the Act. (Secs. 301, 403, 61 Stat. 929, 302; 7 U.S.C. Sup. 1131, 1153).

Issued this 26th day of September, 1949.

/s/ Charles F. Brannan
Secretary of Agriculture

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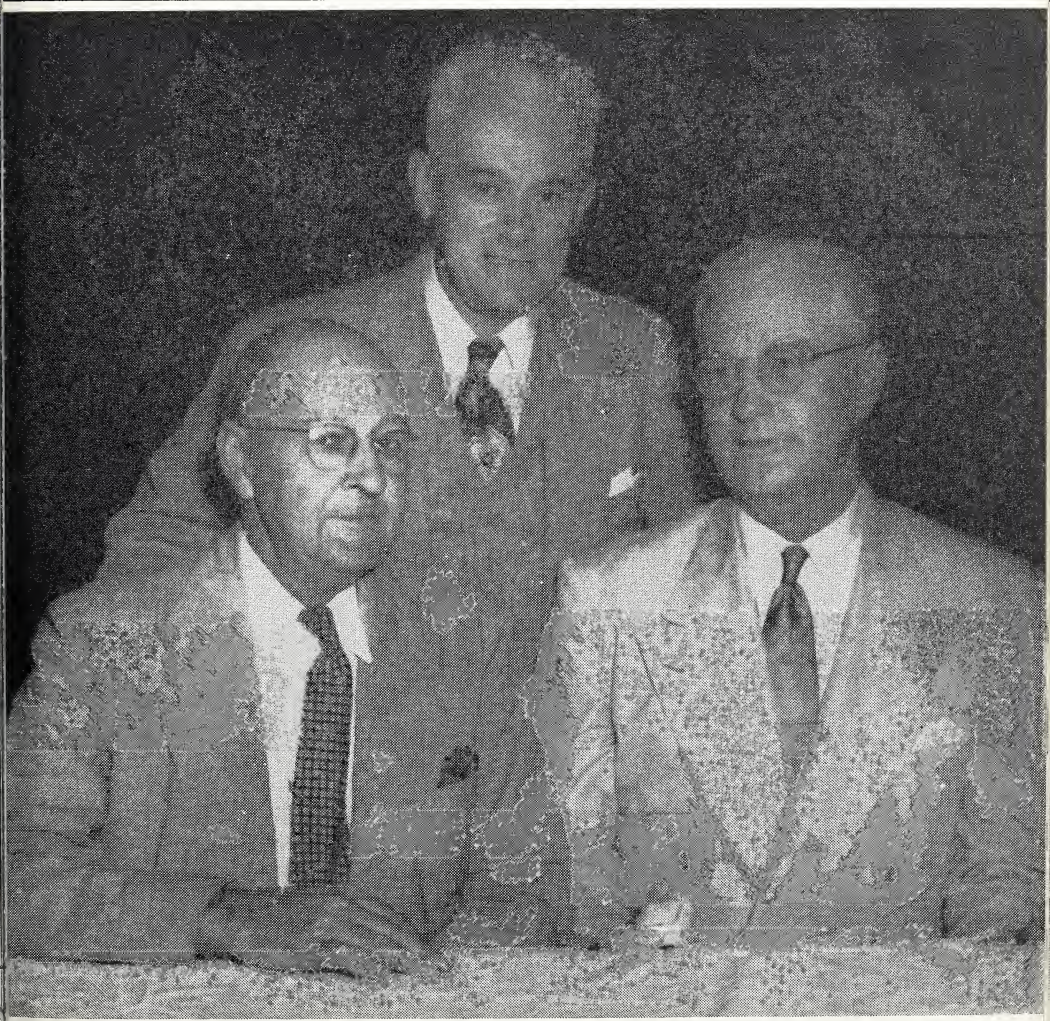

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THE
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WAGES FOR HARVESTING THE 1949 LOUISIANA SUGARCANE CROP

TITLE 7—AGRICULTURE
Chapter VIII—Production and Marketing Administration (Sugar Branch)
Subchapter H—Determination of Wage Rates
(Sugar Determination 865.2)

PART 865—SUGARCANE (HARVESTING); LOUISIANA

Wages, Harvesting, Sugarcane, Louisiana, 1949 Crop

Pursuant to the provisions of Section 301(c)(1) of the Sugar Act of 1948 (herein referred to as "Act"), after investigation, and consideration of the evidence obtained at the public hearing held in Thibodaux, Louisiana, on July 15, 1949, the following determination is hereby issued:

Section 865.2 *Fair and reasonable wage rates for persons employed in the harvesting of the* 1949 *crop of sugar cane in Louisiana.*

(a) *Wage Requirements* — The requirements of Section 301(c)(1) of the Act shall be deemed to have been met with respect to the harvesting of the 1949 crop of sugarcane in Louisiana if the producer complies with the following:

(1) *Wage rates* — All persons employed on the farm in the harvesting of the 1949 crop of sugarcane shall have been paid in full for all such work and shall have been paid wages in cash therefor at rates as agreed upon between the producer and the laborer, but after the date of issuance of this determination, not less than the following:

(ii) *Workers between* 14 *and* 16 *years of age when employed on a day basis*: For workers between 14 and 16 years of age, the basic wage rate per 8-hour day (maximum employment per day for such workers without deduction from Sugar Act payments to the producer) shall be not less than three-fourths of the applicable basic day wage rate provided under subdivision (i) of this subparagraph (1).

(iii) *Hourly rates*: Where workers are employed on an hourly basis, the basic wage rate per hour shall be determined by dividing the applicable basic day wage rate in subdivision (i) of this sub-paragraph (1) by 9 in the case of adult workers, and three-fourths of such rate by 8 in the case of workers between 14 and 16 years of age.

(iv) *Other piecework rates*: The piecework rate for any operation specified in subdivision (i) when performed on a unit basis other than a ton, or the piecework rate for any operation not specified shall be that agreed upon between the producer and the worker: *Provided*, That the hourly rate of earnings of each worker, for the time involved, shall be not less than the applicable hourly rate specified in subdivision (iii) of this subparagraph (1).

(v) *Determination of average sugar prices*: The two weeks' averprice of raw sugar shall be determined by taking the simple average of the daily "spot" quotations of 96° raw sugar (duty paid basis, delivered) of the Louisiana Sugar and Rice Exchange and the Cane Products Trade Association Exchange or of the successor to such exchanges, adjusted to a one hundred pound basis, except that if the Director of the Sugar Branch determines that for any two weeks' period such average price does not reflect the true market value of raw sugar, because of inadequate volume or other factors, the Director may designate the average price to be effective under this determination. For the purpose of this determination the average price of raw sugar prevailing during the period from September 9

(i) *Basic wage rates and adjustments for sugar price changes*: When the average price of raw sugar (duty paid basis, delivered) is within the base price range of $5.60 to $6.00, inclusive, per one hundred pounds for the two weeks' period immediately preceding the two weeks' period during which the work is performed, and for each full 10 cents that such price shall average more than $6.00 or less than $5.60, the basic day and piecework wage rates in the following table shall be applicable:

TABLE OF RAW SUGAR PRICE RANGES AND APPLICABLE BASIC WAGE RATES[1]

Operations	Price Ranges—Two Weeks' Average Price of 100 Lbs. Raw Sugar (Duty Paid Basis, Delivered)						
	At least	$5.201	$5.301	$5.401	$5.501	$6.100	$6.200	$6.300
	But not more than	$5.300	$5.400	$5.500	$6.099	$6.199	$6.299	$6.399
					Base Price Range $5.60-$6.00			
Basic day wage rates per 9-hour day								
Cutting, topping, stripping:								
Adult males		$3.305	$3.370	$3.435	$3.500	$3.565	$3.630	$3.695
Adult females		2.855	2.920	2.985	3.050	3.115	3.180	3.245
Loading		3.955	4.020	4.085	4.150	4.215	4.280	4.345
Cutting and loading		3.505	3.570	3.635	3.700	3.765	3.830	3.895
Tractor drivers and truck drivers		4.055	4.120	4.185	4.250	4.315	4.380	4.445
Teamsters		3.855	3.920	3.985	4.050	4.115	4.180	4.245
Hoist operators		3.505	3.570	3.635	3.700	3.765	3.830	3.895
Operators of mechanical loading or harvesting equipment		4.405	4.470	4.535	4.600	4.665	4.730	4.795
Pilers		3.505	3.570	3.635	3.700	3.765	3.830	3.895
Grabmen, spotters, ropemen		3.955	4.020	4.085	4.150	4.215	4.280	4.345
Scrappers		3.305	3.370	3.435	3.500	3.565	3.630	3.695
Any other operations with harvesting		2.855	2.920	2.985	3.050	3.115	3.180	3.245
Basic piecework rates per ton								
Large barrel varieties:[2]								
Cutting top and bottom, and stripping		1.275	1.300	1.325	1.350	1.375	1.400	1.425
Cutting top and bottom		.805	.820	.835	.850	.865	.880	.895
Loading		.425	.430	.435	.440	.445	.450	.455
Cutting top and bottom, stripping and loading		1.700	1.730	1.760	1.790	1.820	1.850	1.880
Cutting top and bottom and loading		1.230	1.250	1.270	1.290	1.310	1.330	1.350
Small barrel varieties:[2]								
Cutting top and bottom, and stripping		1.560	1.590	1.620	1.650	1.680	1.710	1.740
Cutting top and bottom		.990	1.010	1.030	1.050	1.070	1.090	1.110
Loading		.500	.510	.520	.530	.540	.550	.560
Cutting top and bottom, stripping and loading		2.060	2.100	2.140	2.180	2.220	2.260	2.300
Cutting top and bottom and loading		1.490	1.520	1.550	1.580	1.610	1.640	1.670

[1] For each successive full 10 cent price change above $6.30 or below $5.30, the basic wage rates shall be increased or decreased, correspondingly, by the same amounts as shown above for each full 10 cent price change.

[2] Large barrel varieties: Co. 290; C. P. 29/103; C. P. 29/116; C. P. 33/243; C. P. 36/13; C. P. 36/105; and C. P. 29/120. Small barrel varieties: all other.

through September 22, 1949, shall determine the wage rates from September 23 through October 6, 1949, and thereafter the wage rates in successive two weeks' work periods shall be determined by the average price of raw sugar prevailing in the immediately preceding two weeks' period.

(2) *Perquisites*—In addition to the foregoing, the producer shall furnish to the laborer, without charge, the perquisites customarily furnished by him, such as a habitable house, medical attention, and similar items.

(b) *Subterfuge* — The producer shall not reduce the wage rates to laborers below those determined herein through any subterfuge or device whatsoever.

(c) *Claim for unpaid wages*— Any person who believes he has not been paid in accordance with this determination may file a wage claim, within two years from the date the work with respect to which the claim is made was performed, against the producer on whose farm the work was performed with the local County Agricultural Conservation Committee, Production and Marketing Administration. Detailed instructions and wage claim forms are available at the office of the local County Committee. Upon receipt of a wage claim the County Committee shall thereupon notify the producer against whom the claim is made concerning the representation made by the laborer and, after making such investigation as it deems necessary, notify the producer and laborer in writing of its recommendation for settlement of the claim. If either party is not satisfied with the recommended settlement, an appeal may be made to the State PMA Committee, University Station, Baton Rouge, Louisiana, which shall likewise consider the facts and notify the producer and laborer in writing of its recommendation for settlement of the claim. If the recommendation of the State PMA Committee is not acceptable, either party may file an appeal with the Director of the Sugar Branch, Production and Marketing Administration, U. S. Department of Agriculture, Washington 25, D. C. All such appeals shall be filed within 15 days after receipt of the recommended settlement from the respective committee, otherwise such recommended settlements will be applied in making payments under the Act. If a claim is appealed to the Director of the Sugar Branch, his decision shall be binding on all parties insofar as payments under the Act are concerned.

Statement of Bases and Considerations

(a) *General*

The foregoing determination provides fair and reasonable wage rates to be paid by producers to persons employed in the harvesting of the 1949 crop of sugarcane in Louisiana. It prescribes the minimum requirements with respect to wages which must be met as one of the conditions for payment under the Act. In this statement, the foregoing determination, as well as determinations for prior years, will be referred to as "wage determination", identified by the crop year for which effective.

(b) *Requirements of the Act and standards employed*

In determining fair and reasonable wage rates it is required under the Act that a public hearing be held, that investigations be made, and that consideration be given to (1) the standards formerly established by the Secretary under the Agricultural Adjustment Act as amended, and (2) the differences in conditions among various sugar producing areas.

A public hearing was held in Thibodaux, Louisiana, on July 15, 1949, at which time interested persons presented testimony with respect to fair and reasonable wage

(Continued on Page 29)

POWDERED CALCIUM CARBONATE (OYSTER SHELL FLOUR) IN PROCESSING OF SUGARCANE

By Emile K. Ventre and R. T. Balch, U. S. Sugar Plant Field Laboratory,

At the suggestion of the senior author, based on laboratory experiments on clarification of refractory juices, powdered calcium carbonate in the form of oyster shell flour was used in varying quantities by a number of factories during the 1948-9 season. The majority opinion was that this material had definite merit. The few differing opinions, it is believed, arose from an inadequate manner in these cases of using the calcium carbonate, since the urgency of the need for a clarification aid had not permitted preliminary experimentation and checking. Now presented, with the benefit of last season's experience and additional experiments, are specific recommendations on the use of calcium carbonate which should give satisfactory results if correctly followed.

Sources and Description of Calcium Carbonate

Several well-known sources of natural calcium carbonate are limestone, marble, and chalk, but the most readily available yet lesser-known source in Southern Louisiana is the large deposits of oyster and clam shells to be found in near-by Gulf waters. The availability and relatively low cost of ground oyster shells—oyster shell flour—led to its selection by the sugar factories last season as a means of aiding clarification. Other forms of calcium carbonate of comparable grade, both natural and chemically prepared, will work equally as well in cane juice clarification.

The degree of fineness is an important consideration in selecting the calcium carbonate product to be used as a clarification aid. The product should be of such fineness that at least 99% passes a 200-mesh screen (wet test). This will insure a minimum of abrasion of pumping equipment without being so fine as to give a carbonate "smoke" to clarified juice. The material used last year was not so finely ground and also contained an appreciable fraction greater than 100-mesh.

Some Basic Principles of Juice Clarifications and Observations of Factory Operations

Good clarification is defined from various points of view. From a chemical standpoint it refers to the elimination, by chemical precipitation, of nonsugar constituents obtaining, as a consequence, appreciable increase in juice purity. From a physical standpoint, on which the factory operator judges the process, good clarification means clear juice, rapid settling of the lime precipitate or muds, low mud levels and "hard" and easily filtering muds which do not overload the filter stations.

Many operators consider slow-settling of the lime precipitate or mud to be the major classification difficulty. They often overlook the fact that increased mud volumes are of equal or greater importance. It has been found that the lime precipitate settles under gravity to a fairly uniform consistency, but varies with the raw material, within the normal time allotted to settling. Once settled to this point there is very little additional shrinkage in the volume of the muds on further standing. When conditions are such that mud volumes are low, clarification troubles are usually at a minimum. When mud volumes are high, which is normal for several of the present commercial varieties of sugar cane grown for sugar production in Louisiana, and which is accentuated by the processing of old cut cane (through drying out) and trashy cane, a quite difficult situation can occur. High mud volumes

LEAGUE ELECTS OFFICERS

The Twenty-seventh Annual Meeting of the American Sugar Cane League was held in the Jackson Room of the St. Charles Hotel in New Orleans on September 29th, 1949, and Mr. J. J. Munson, of Houma, La., was elected the League's fifteenth President. Mr. Munson succeeds Mr. Murphy J. Foster who served as President of the League for the two preceding years.

The meeting was one of the best annual gatherings that this organization has had in recent years. Complimentary speeches were the order of the day and a spirit of cooperation and good fellowship prevailed. It must have been very gratifying to Mr. Foster at the end of his second term in office to see that his administration had resulted in such harmony.

One of the highlights of the meeting was the presentation, as a souvenir, to Mr. Foster of the gavel that he used throughout his two terms in office. Mr. Munson made the presentation on behalf of the Executive Committee of the League and said that it went "with the affection, esteem and admiration of the whole organization."

A pleasant innovation was the attendance of the wives of several members of the Executive Committee and we feel sure that their presence had a lot to do with the good conduct of the meeting.

Among the celebrities present who were invited to address the meeting were Dr. E. W. Brandes, Dr. I. L. Forbes, Dr. S. J. P. Chilton, Dr. W. M. Grayson, and Congressman Hale Boggs.

Life memberships in the League were presented to Mr. Marcel J. Voorhies, Mr. C. J. Bourg, and Mr. Stephen C. Munson.

The following officers were elected: J. J. Munson, President, L. A. Borne, 1st Vice-President, J. P. Duhe, 2nd Vice-President, J. L. V. Grenier, 3rd Vice-President, C. J. Bourg, 4th Vice-President and Manager of the League's Washington Office, Marcel J. Voorhies, 5th Vice-President and General Manager of the League, Reginald Dykers, Manager Emeritus, J. J. Shaffer, Jr., Secretary, and R. H. Chadwick, Treasurer.

The gentlemen elected to serve on the Executive Committee are T. M. Barker, George L. Billeaud, Chas. A. Farwell, Edward J. Gay, W. F. Giles, Walter Godchaux, Jr., F. A. Graugnard, Jr., E. N. Kearny, Leon J. Landry, H. Langdon Laws, Stephen C. Munson, D. W. Pipes, Jr., Ed. Schexnayder, Dubourg Thibaut, Spencer G. Todd, Louis A. Wilbert, Murphy J. Foster, Whittaker Lonsdale, George M. Murrell, and W. R. Ellender.

The home addresses of the members of the Executive Committee and those of the officers appear in the masthead of *The Sugar Bulletin*.

The annual speech of retiring President Murphy J. Foster was printed in the October 1st issue of *The Sugar Bulletin*. Elsewhere in this issue we are printing the remarks of Mr. R. H. Chadwick, Mr. J. J. Munson, and Mr. George L. Billeaud as they presented the Life Memberships to Mr. Voorhies, Mr. Bourg, and Mr. Stephen C. Munson.

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mean more volume to be filtered and more muddy filtrate to be returned to the process. The worst conditions arise when this muddy filtrate is returned to raw juice and thence back to the clarifier. It was not unusual last season to find mud volumes, after complete settling, ranging from 35 to 40% of the total volume.

One of the several means of obtaining various degrees of relief from this situation is the use of calcium carbonate in the clarification process.

(Continued on Page 27)

LIFE MEMBERSHIP AWARDS

Note: The Boss wanted us to leave him out of this but, after all, a fellow only gets a Life Membership once in a lifetime and, if you know Mr. Voorhies, you will agree that this couldn't have happened to a finer fellow. He's in high class company, too!

The highest honor that the American Sugar Cane League can bestow was presented to three outstanding workers in the League at the Annual Meeting held in New Orleans on September 29th, 1949.

The gentlemen honored were Marcel J. Voorhies, 5th Vice-President and General Manager of the League, Clarence J. Bourg, 4th Vice-President and Manager of the League's Washington Office, and Stephen C. Munson, Chairman of the very important Contact Committee of the League and one of its past presidents.

We print below the addresses of R. H. Chadwick, J. J. Munson, and George L. Billeaud, who presented the Life Memberships in behalf of the Executive Committee of the American Sugar Cane League to Mr. Voorhies, Mr. Bourg, and Mr. Munson in the order named.

Mr. Chadwick:

I have prepared no speech whatever. I think the record you have made as General Manager of the American Sugar Cane League requires no speech made on my part to set forth your accomplishments. I think what the League is going to present to you is the highest honor within the realm of the industry and the League. It is therefore a great honor and privilege on my part, Marcel, in recognition of services over and above the call of duty, to present to you a Life Membership in the American Sugar Cane League.

Mr. Munson:

In 1929 the American Sugar Cane League had the singular good fortune to secure the services, as its Washington representative, of a man who has, ever since that time, played a leading and indispensable part in its operations. It was about twenty years ago that the United States Government began to play an increasing part in the destiny of the Louisiana Sugar Industry, and, incidentally in the importance of the American Sugar Cane League.

It was at that time that a young attorney in Lafourche Parish, who had just returned to practice after war service abroad, came to the attention of this organization and he was placed in charge of our Washington office.

I do not have to tell you who it was for you all know. It was Clarence J. Bourg.

Ably, intelligently and indefatigably Clarence Bourg has served us since that time. His duties have increased in their scope and importance. We all have for him both admiration and respect.

Mr. Bourg, by the instructions of the League's Executive Committee I now present to you a certificate of life membership in this organization. With it there goes to you the good wishes and congratulations of all the members of this organization.

Mr. Billeaud:

Members of the American Sugar Cane League and distinguished guests.

Mr. President:

It is my happy task today to serve as spokesman for all the members of the American Sugar Cane League in expressing the high opinion we all have for one to whom there will this day be awarded a life membership in this organization. The man

RULES COVERING RAW SUGAR QUOTATIONS

The Louisiana Sugar Exchange, Inc., has announced that effective Friday, October 7, 1949, the following rules will govern the RAW SUGAR QUOTATIONS issued by that Exchange.

Refiners — American, Godchaux, Colonial, and Henderson for Louisiana raws. American, Godchaux, Colonial, Henderson, South Coast, Southdown, Sterling, and Supreme for offshore raws.

Terms—F.O.B. New Orleans duty paid basis.

Quantity — Not less than 1,000 bags of Louisiana raw sugar or less than 1,000 long tons of offshore raw sugar.

Kind of Sale—Only spot sales (delivery within 35 days) covered by contract between a Louisiana raw sugar producer, or a seller of offshore raw sugar, and any one of the refiners listed above shall be considered a spot sale of raw sugar. Only sales covered by one contract shall be considered, and no re-sales from one refiner to another refiner shall be considered.

Time Limit for Sales—Sales completed before 2 P.M. shall be used in arriving at a price for the day. All sales completed after 2 P.M. shall be carried over to the following market day and included in the sales of that day. The Exchange week shall be Friday through Thursday.

Holidays — The Louisiana Sugar Exchange, Inc., shall be closed when the New York sugar market is closed.

Daily Average Prices—All daily average prices shall be the simple average of the spot sales of Louisiana raws or offshore raws to the refiners listed above recorded on any given day. When no spot sales of Louisiana raws or offshore raws to the refiners listed above are reported on any given day the quotation for that day shall be the daily spot quotation of the New York Coffee & Sugar Exchange adjusted to a duty paid delivered New Orleans basis by using the freight rate differential from Cuba, if any, existing between New York and New Orleans as furnished by James E. Ward & Co., of New York.

Weekly Average Prices — Weekly average prices shall be established by taking the simple average of the daily quotations of this Exchange.

Average Price for the Season—The Season's average price shall be established by taking the simple average of the weekly average prices issued by this Exchange applicable to the Cane Purchase Contract period.

Correction of Quotations—The Exchange reserves the right to adjust any erroneous quotations.

The Raw Sugar Quotation Committee is composed of John Levert, Chairman, Louis Ebeling, J. C. LeBourgeois, Jr., Chas. A. Levy, Jules Mialaret, C. W. Peterman, E. A. Rainold, Jr., and G. M. Talmage.

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to whom I refer has, during all of his adult life, taken an active, able and constructive part in promoting the welfare of the sugar industry of Louisiana. He has been a builder, a constructor, a tireless leader in behalf of the sugar industry of this state. At the early age of 27 he was so outstanding in his devotion to the Louisiana Sugar Industry in which we are all engaged and which we all love, that the Louisiana Sugar Planters Association, predecessor of the American Sugar Cane League, in promoting the prosperity of the cane sugar industry here, elected him, just six years after he reached his majority, to its first Vice-Presidency; and he served faith-

(Continued on Page 27)

RULES COVERING BLACKSTRAP MOLASSES QUOTATIONS

Beginning Friday, October 7, 1949, the following rules will govern the BLACKSTRAP MOLASSES QUOTATIONS issued by the Louisiana Sugar Exchange, Inc.

Standard Blackstrap — (Not less than 42 Beaume at 90 degrees F.) No molasses sold on grade will be considered as Blackstrap for quotation purposes.

Terms—Bulk f. o. b. Plantation.

Quantity—Not less than 5 tanks.

Delivery—Prompt (Shipment to be completed within 21 days).

Recognized Dealers—American Molasses Co., Cane Products Co., of New York, Colonial Molasses Co., General Molasses Co., Harry L. Laws & Co., J. H. Leftwich & Co., of Mobile, Manard Molasses Co., Molasses Products Co., Pacific Molasses Co., Penick & Ford Co., Ltd., Thomas E. Snyder Sons Co., of Chicago, Williams Molasses Co.

Kind of Sale—Only prompt sales made for the account of a producer to a recognized dealer and covered by contract will be used in establishing prices.

Time Limits for Sales—Sales and purchases must be reported on the same day that they are made. Sales completed before 2 P.M. shall be used in arriving at a price for the day. All sales completed after 2 P.M. shall be carried over to the following market day and included in the sales of that day. The Exchange week shall be Friday through Thursday.

Holidays—The Louisiana Sugar Exchange, Inc., shall be closed when the New York sugar market is closed.

Daily Average Prices—All daily average prices shall be the simple average of the sales recorded on that day.

Weekly Average Prices—Weekly average prices shall be established by taking the simple average of the daily quotations of this Exchange.

Average Price for the Season—The season's average price shall be established by taking the simple average of the weekly average prices issued by this Exchange applicable to the Cane Purchase Contract period.

Correction of Quotations—The Exchange reserves the right to adjust any erroneous quotations.

The Blackstrap Molasses Quotation Committee of the Exchange is composed of Sidney J. Menard, Chairman, Ernest A. Burguieres, Louis Ebeling, L. P. Evans, J. C. LeBourgeois, Jr., Chas. A. Levy, John Manard, and E. A. Rainold, Jr.

THE MICROBIOLOGY OF SUGARS, SYRUPS AND MOLASSES

This erudite little volume by our distinguished Louisiana scientist, Dr. William L. Owen of Baton Rouge, has come to the editorial desk of *"The Sugar Bulletin"* and introduces itself on its title page as a reference book for raw sugar manufacturers or refiners and for all industries engaged in the manufacture, storage or commercial utilization of sugars, syrups and molasses. Its table of comments follows:

The Source of Microorganisms in Factory Juices 1
The Microbial Flora of Sugar Cane and Beet Juices .....
Typical Fermentations of Cane and Beet Juices 2
Fermentation of Diffusion Juices from Sugar Beets 4
The Appraisal of the Microorganisms in Cane Juices and Beet Diffusion Juices 4
The Progressive Decimation of Microorganisms Incident to the Manufacturing Process 5
The Microbiology of Syrups 7
The Microbiology of Raw Sugars 11

The Deterioration of Blackstrap Molasses in Storage ... 195
Author Index ... 220
Index ... 224

Dr. Owen, one of the most learned nd proficient of our sugar scienists, gives liberal acknowledgment n the book to Mr. John U. Barr of ew Orleans for practical collaboation and to Dr. C. S. McCleske f the Louisiana State University nd to Dr. Geo. P. Meade of the ramercy Refinery of the Colonial ugar Co.

Those who aspire to the higher vels of scientific sugar lore will nd an abundance of it in this volme.

Burgess Publishing Co., 426 S. th St., Minneapolis, Minn, is named s the printer and the publisher is he Barr-Owen Research Enterrises, 2524 N. Boulevard, Baton ouge, La.

IFE MEMBERSHIPS

(Continued from Page 25)

ully, conscientiously, ably and well. among the graybeards on the Executive Committee of the Louisiana ugar Planters Association this oung lad held the second highest osition within their gift and held successfully. Two or three years ater when the Louisiana Sugar lanters Association was absorbed y the American Sugar Cane League e became a charter member of the eague, and shortly afterwards was lected its President at the early age f 33, the youngest President, I beeve, in the 27 year history of the eague. He was then and has ever ince been a charter member of its xecutive Committee, for 27 years, steemed, admired and beloved by ll.

During his administration as its resident the American Sugar Cane eague appropriated funds for the onstruction of the original three uildings at the U. S. Sugar Station t Houma. Those buildings, still sefully serving the industry to hich he has dedicated his life's work, stand there as landmarks of accomplishment. It was during his administration that the Contact Committee, one of the League's most important, was first conceived and organized. He has served as a member of that committee since its organization with the exception of two years, and as its able, efficient and respected chairman since 1934. That, my friends, is indeed a notable record. He has unselfishly served, with distinction, on practically every Committee of this organization. A vivid exemplification of "service above self."

I could go on and on, systematically recounting his full record of service and accomplishment. I could tell you much about his keen appreciation and generous dispensation of good sportmanship, sincere fellowship and fair play, but, to attempt to do this might be presumptuous on my part, for, I believe, that each and every one of you can sing his praises equally as well as I.

His hair is now gray, but his head is not bowed.

He has given the best years of his life to us all and it is with gratitude, affection and admiration that we are today bestowing upon him a Life Membership in the American Sugar Cane League.

Mr. Stephen C. Munson, (affectionately called Steve by all of us) in behalf of all of the officers, all of the members of the Executive Committee, all of the membership and all of the employees of the American Sugar Cane League, I salute you. Keep this certificate as one of your most precious possessions. You have earned it honorably and well and we are all happy to bestow it upon you.

POWDERED CALCIUM

(Continued from Page 23)

How Calcium Carbonate Acts in Clarification

When properly applied oyster shell flour acts in three ways. First

it weights the lime floc which causes it to settle faster without increasing the volume of the settling. In fact, the volume may be smaller with use of the carbonate. Second, oyster shell flour is capable of neutralizing free acids. And although under ordinary conditions of clarification, the carbonate has very little opportunity to react, it actually largely prevents the development of any acidity through decomposition. When being used it becomes distributed throughout the clarifier and filter systems and tends to keep these in a "sweeter" condition than would otherwise be so. The carbonate will replace a small portion of the lime used for clarification. Third, if the carbonate is added to the juice as positively charged particles, it neutralizes the negative charge of some of the colloids of cane juice, which causes them to be more easily precipitated.

Proper use of the carbonate thus leads to better clarified juices. These observations form the basis for the following recommendations for use of calcium carbonate as a clarification aid.

Amount of Calcium Carbonate to Use

When clean, fresh cane is being processed, it is not likely that clarification will cause any trouble; however, if stale or trashy cane is being processed, it is advisable to add carbonate continuously at a minimum rate of about 2 pounds per ton. If the condition of the cane appears or is known to be bad, and 2 pounds of the carbonate does not remedy the trouble in clarification, the amount should be increased to a maximum of about 4 pounds per ton. At the rates of 2 and 4 pounds, the cost would range from 0.8 cents to 1.6 cents per ton of cane, at the price of oyster shell flour prevailing in the fall of 1949.

How to Apply the Calcium Carbonate

It is suggested that the calcium carbonate be applied in one or tw ways, as follows:

(1) Prepare a mixture of the ca bonate and lime in such proportio that when added to juice to give th correct reaction for clarificatio the carbonate will be introduced a the rate of about 2 pounds per to of cane. A convenient and easi prepared mixture is 2 parts b weight of the carbonate (oyster she flour) to 1 part of lime. Thus, if th lime demand is 1 pound per ton c cane, the rate of carbonate add tion will be 2 pounds. The ratio c carbonate to lime can be change for meeting varying conditions. Th mixture of carbonate and lime suitable for various methods c clarification, such as cold limin hot liming, or even fractional lim ing.

(2) The lime and the carbona may be added as separate suspe sions as follows: Prepare the ca bonate with lime water or in wat along with a small amount of lim This insures a positive charge c the carbonate particles. Lime shou be added first to the juice and fo lowed by the carbonate suspensio This method of application is mo conveniently used in fractional-lim ing clarification. In such a metho cold juice is adjusted to about 6 pH with lime, it is then heated, an the carbonate-lime suspension adde Final adjustment is made with eit er the mixture of carbonate and lim or lime alone to a final reaction about 7.2 pH cold resulting in clarified juice of 6.4-6.6 pH. A though somewhat complicated, th method is certain to yield excelle clarified juices.

Supplementary

Since oyster shell flour or an other form of calcium carbonate a material composed of fairly har particles, it may be expected to ha some abrasive action on pumpin equipment. But this wear should n be excessive, if the coarse materi is eliminated as specified. The

ll be some tendency for the oyster ell flour to settle out of suspen- ons, so it will be necessary to pro- de sufficient agitation at the pro- r points to prevent this. Also, re- sign of some liming devices may required to handle the mixture of ster shell flour and lime satisfac- rily.

The carbonate of proper fineness es not stop up any of the screens rmally used. This applies to juice reens and the filtering screen of e Oliver filter. A deposit some- mes forms on the back of the lat- r but there is no evidence that is is increased by carbonates. If ster shell flour is used as outlined, ere is little danger of bicarbonate rmation which might deposit car- nate scale. No evidence has been resented to indicate that scale for- ation is any more serious when ing oyster shell flour than when t using it. Apparently the scale hich is deposited is not a carbonate ale but rather a siliceous type, dging from its reported resistance acid treatment, and would have curred in any event where juices ntaining a high amount of field ud were processed.

Practical Advantage

The practical advantage to be ined through the use of calcium rbonate as a clarification aid is at it permits the clarifiers and fil- rs to operate at nearly normal ted capacity. This means that the ills can grind cane at their nor- al rate. In turn, this allows the ctory to keep abreast of the field erations, as scheduled. By main- ining its grinding rate the mill is tomatically furnished a supply of esh cane with all its attendant vantages.

It must not be taken for granted at oyster shell flour or other rms of calcium carbonate are a re for all evils. Every effort ould be made to correct bad prac- es, whether in the field or in the ctory. Even though the carbonate may serve to expedite the clarification of juices from cane giving high mud volumes and increase yields due to fresher cane, it will not alleviate the reduced yields due to grinding improperly topped cane.

[1]One of the laboratories of the Bureau of Agricultural and Industrial Chemistry, Agricultural Research Administration, U. S. Department of Agriculture.

WAGES

(Continued from Page 21)

rates for harvesting the 1949 crop of sugarcane. In addition, investigations have been made of the conditions affecting wage rates in Louisiana. In this determination, as in prior determinations, considerations has been given to testimony presented at the hearing and to the information resulting from investigations. The primary factors which have been considered are (1) prices of sugar and by-products; (2) income from sugarcane; (3) cost of production; (4) cost of living; and (5) relationship of labor cost to total cost. Other economic influences also have been considered.

(c) *Background*

Wage determinations applicable to harvesting sugarcane in Louisiana have been issued each year beginning with the 1937 crop. The earlier determinations provided time rates for adult males and females as well as alternative piecework rates. Subsequently, coverage was extended to include semi-skilled and skilled workers and workers between 14 and 16 years of age. In conformity with changes in production and harvesting methods, adjustments have been made from time to time in certain of the time and piecework rates.

The 1937 wage determination increased basic adult male wages for harvest 25 cents per day over those of the previous year. An increase in producer income at the same time permitted the maintenance of the customary relationship of wages to income that had existed in prior years. The basis wage rates were

not changed during the years from 1938 to 1940 and the wage-income relationship remained relatively constant. Beginning with the 1941 wage determination, the basic wage rates were increased 15 cents per day and have been increased in varying amounts each subsequent year except in 1944 and 1945. Throughout these years wage rates have been established primarily on the basis of the historical wage-income relationship, although in some years the relationship has been altered somewhat to give recognition to significant changes which have occurred in other factors customarily considered in establishing wage rates. Since the base period 1938-40, the weighted average basic time rate for harvesting has been increased from 17.3 cents per hour to 40.9 cents in 1948, and increase of 136.4 percent. The results of a sample survey conducted during the 1948 harvest indicated that the earnings of hand labor employed on piecework in the cutting, stripping, and loading of sugar cane ranged between 55 and 75 cents per hour.

In order that wage rates might be more responsive to significant changes in sugar prices and producer income than was possible under the fixed wage levels of preceding determinations, there was included in the 1948 determination a modified wage-price escalator scale. Provision was made that basic time and piecework rates for a two weeks' work period be increased or de creased for each full 10 cents tha the average price of 96° raw suga (duty paid basis, delivered) wa more than $6.25 or less than $5.6 per one hundred pounds for the tw weeks' period immediately prece ing the two weeks' period durin which the work was performed. Th amount of increase or decrease wa $0.065 per 9-hour day in the cas of basic day wage rates and i amounts ranging from $0.005 t $0.040 per ton in the case of piec work rates.

(d) 1949 *wage determination*

The 1949 wage determination co tinues unchanged the basic wag rates of the 1948 harvesting wag determination, except that the upp limit of the price bracket of th wage escalator has been lowere from $6.25 to $6.00 per one hu dred pounds of raw sugar. Th change conforms to recommenda tions made at the public hearin In the 1949 wage determination th amount of wage increases or d creases for each full 10 cent chan in the average raw sugar pri above $6.00 or below $5.60, per o hundred pounds, respectively, is th same as in the 1948 determinatio i.e., $0.065 per 9-hour day in th case of day wage rates and fro $0.005 to $0.040 in the case of piec work rates. In this wage determ nation a complete table of day an piecework rates is provided for a erage raw sugar prices betwe

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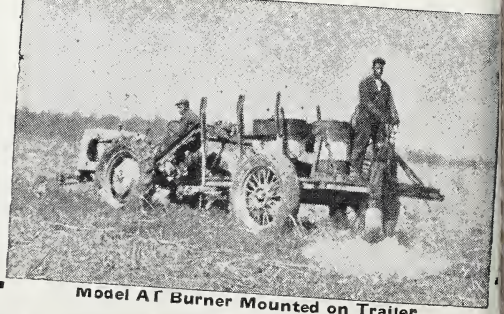

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5.201 and $6.399, per one hundred ounds.

In the foregoing determination, verage raw sugar prices for a two veeks period are derived from the aily "spot" quotations of the Louisina Sugar and Rice Exchange and he Cane Products Trade Associaion Exchange or of the successor o such exchanges. Provision is nade for the use of quotations by ne successor exchange because f an anticipated consolidation and edesignation of the two existing xchanges.

Added to the 1949 determination s a provision setting forth the proedure which a person should follow n filing a wage claim in the event e believes he has not been paid in ccordance with this determination. Vhile wage claim procedure has een effective in prior years, its inusion in the determinations will nake such information generally vailable to all producers and laborrs.

An examination of available data ndicates that since the 1938-40 base eriod there have been substantial ncreases in the various economic actors affecting wage rates in the arvesting of the Louisiana sugarane crop although the rate of inrease for the individual factors has ot been uniform. The period since 947 has been marked by a decline n raw sugar and molasses prices resulting in lower producer inome) yet with increases in producon costs and costs of living to ugarcane workers. While the maret price of molasses continued ownward in 1949, raw sugar prices n mid-summer 1949 were approxiately 17 percent higher than the w point reached in May 1948. sing 1938-40 as a base period the osts of production and the cost of ood and clothing have decreased omewhat since the fall of 1948, alough in more recent months there as been a slight increase in the ost of foods over the first quarter of 1949. The absence of significant changes during the past year in factors considered affords a reasonable basis to continue the basic wage rates unchanged. In addition to the piecework and time basis rates workers must be furnished, without charge, the customary perquisites such as habitable housing, medical attention, and similar items.

Accordingly, I hereby find and conclude that the foregoing wage determination will effectuate the wage provisions of the Sugar Act of 1948. (Secs. 301, 403, 61 Stat. 929, 932; 7 U.S.C., Sup. 1131, 1153).

Issued this 9th day of September, 1949.

Charles F. Brannan,
Secretary of Agriculture

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THE SUGAR BULLETIN

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THE
SUGAR BULLETIN

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MARCEL J. VOORHIES, Editor

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DETERMINATION OF NORMAL YIELDS--ABANDONMENT AND CROP DEFICIENCY PAYMENTS

Title 7—Agriculture

Chapter VIII—Production and Marketing Administration (Sugar Branch) Department of Agriculture

Subchapter F — Determination of Normal Yields and Eligibility for Abandonment and Crop Deficiency Payments

Sugar Determination 845.1

Part 845—Mainland Cane Sugar Area

1949 and Subsequent Crops

Pursuant to the provisions of section 303 of the Sugar Act of 1948, the following determination is hereby issued:

845.1 Normal yields of commercially recoverable sugar per acre and eligibility for payment with respect to acreage abandonment and crop deficiencies for sugarcane farms in the Mainland Cane Sugar Area. (a) The normal yield of each sugarcane farm in the Mainland Cane Sugar Area shall be established for the 1949 and each subsequent crop year as follows:

(1) For a farm on which sugarcane was planted in more than two years of the applicable base period, as defined in subparagraph (4) (ii) of this paragraph, the normal yield shall be the simple average of all the annual average yields for the farm, as defined in subpargraph (4) (i) of this paragraph, for such crop years.

(2) For a farm on which sugarcane was planted in only one or two years of the applicable base period, the normal yield shall be the product of the county normal yield of sugar per acre, as defined in subparagraph (4) (iv) of this paragraph, and the percentage obtained by dividing the simple average of the annual average yields for the farm for such year or years by the simple average of the county average yields o sugar, as defined in subparagrap (4) (iii) of this paragraph, fo such year or years, except that th normal yield for such farm shall b not less than 80 percent nor mor than 120 percent of the county nor mal yield.

(3) For a farm on which n sugarcane was planted in any yea of the base period, the normal yiel shall be 90 percent of the count normal yield.

(4) Definitions. (1) The "annua average yield for the farm" sha mean the average yield in hundred weight of sugar commercially recov erable per planted acre of propor tionate share sugarcane (excludin seed sugarcane) for each crop yea of the base period as computed fror the production record applicable t all of the land constituting the far in the crop year for which the nor mal yield is established. Such pro duction record shall be the actua record wherever available, otherwis it shall be the production record es tablished for such land by the loca County Agricultural Conservatio Committee, in accordance with in structions issued by the Productio and Marketing Administratio "Planted" acres as used herein sha mean acres from which sugarcan was harvested and marketed for th extraction of sugar and bona fid abandoned acres.

(ii) "Base period" shall mean th crop years specified below for th designated crop year.

Crop Year:	Base Period (crop years)
1949	1945, 1946 and 1948
1950	1945, 1946, 1948 and 194
1951	1945, 1946, 1948, 1949 an 1950
1952	1946, 1948, 1949, 1950 an 1951

(Continued on page 45)

CROP NEWS BY PARISHES

from
COUNTY AGENTS

Grinding of the new cane crop was off to a rather erratic start about the middle of October because of the continued summer weather. We have asked the County agents to send in some reports concerning the activities in their districts and are printing these below. First, however, it will probably be interesting to see what the official crop report of the U. S. Department of Agriculture has to say about the condition of the cane crop in Louisiana and Florida as of October 1st. The report states that "on the basis of October 1st prospects the continental sugarcane crop to be harvested for sugar and seed is estimated at 7,920,000 tons. This represents an increase of 112,000 tons over the September 1st forecast because of the improved conditions in Florida. Last year's crop totaled 6,847,000 tons and the 10 year average production of 5,952,000 tons.

"In Louisiana the crop is in very good condition generally. September weather was favorable and the cane has a good stand, height and barrel. There has been little weather damage throughout the season, although borers are reported in parts of Iberia and St. Mary Parishes. Harvesting will be late this year and as a result damage from frost is still possible.

The Florida crop showed marked improvement during September and damage from the August hurricane was largely overcome. The storm damage was mostly from flattened canes rather than from broken stalks."

Iberville Parish. R. J. Badeaux, Jr., County Agent of Iberville Parish, dated his report October 22nd and stated that five mills in his district were operating on that date. The first mill to begin operations got underway on October 13th. Mr. Badeaux reports that the canes were averaging about 10.88 in sucrose and 72.4 in purity with the tonnage production average about 21 tons of cane to the acre.

In commenting on the general outlook for the season Mr. Badeaux stated that trash was generally running about 10 percent and that little cane had been burned up to the time of his report. On October 22nd harvest operations were slow but expected to pick up shortly. "Low sucrose and purity," Mr. Badeaux states, "have had the effect of retarding the harvest that is generally well under way by this time each year."

St. John Parish. Grinding operations in St. John Parish began on October 14th and V. O. Calandro, County Agent, advised us on October 24th that the canes were averaging about 11 per cent in sucrose and around 75 purity. The canes were cutting about 20 tons to the acre. Mr. Calandro anticipates a higher yield in his district than that of last season if favorable weather prevails throughout the grinding season.

West Baton Rouge Parish. A. E. Camus, County Agent of West Baton Rouge Parish also dated his report October 24th. He states that on that date the canes were running from 8 to 11½ per cent in sucrose with a purity of about 73. The production per acre was averaging about 25 tons. Grinding operations in his district began on October 11th.

In his comment on the prospects Mr. Camus states "As far as the crop is concerned the tonnage is as good, probably better, than last year

(Continued on page 44)

THE VARIETY CENSUS FOR 1949

By George Arceneaux, Principal Agronomist, Division of Sugar Plant Investigations, Bureau of Plant Industry, Soils, and Agricultural Administration, Agricultural Research Administration, United States Department of Agriculture.

New varieties of sugarcane are made available to Louisiana growers from time to time through a program of breeding, testing and distribution conducted cooperatively by the United States Department of Agriculture, Louisiana State University, and The American Sugar Cane League. 24 varieties have been released for commercial culture under this arrangement since 1924. These are P.O.J. 234, 213, 36 and 36-M, Co. 281 and 290, C. P. 807, 28-11, 28-19, 29-320, 29-116, 29-120, 33-310, 34-92, 34-120, 36-13, 36-19, 36-105, 36-183, 44-101 and 44-155.

Fig. 1 gives a graphic representation of changes in the proportion of the state acreage devoted to each of 4 groups of varieties since 1926. The noble varieties, (Louisiana Purple and D-74) accounting for essentially the entire state acreage immediately prior to 1926 had been largely replaced by P.O.J. varities by 1929. The P.O.J. varieties were in turn replaced by C. P. and Co. varieties and had virtually disappeared from commercial culture by 1939. Peak utilization of Co. varieties was reached in 1939 when Co. 281 and Co. 290 accounted for nearly 56% of sugarcane acreage of Louisiana. After that, utilization of C. P. varieties continued on the increase while planting Co. varieties declined rather sharply. C.P. varieties now account for approximately 84% of the Louisiana sugarcane acreage.

Table 1, based in part on information supplied by County Agents* of important sugar producing parishes and in part on data obtained directly from growers, gives the percent distribution of sugarcane acreage according to variety in the 3 principal areas of the Louisiana Sugar District during 1949. Changes in the percent of the state acreage devoted to each of several commercial varieties during the period 1945 to 1949 are also shown in the table.

C. P. 34-120, now accounting for approximately one fourth of the Louisiana sugarcane acreage is the variety most extensively planted in the state. It occupies nearly 30 per-

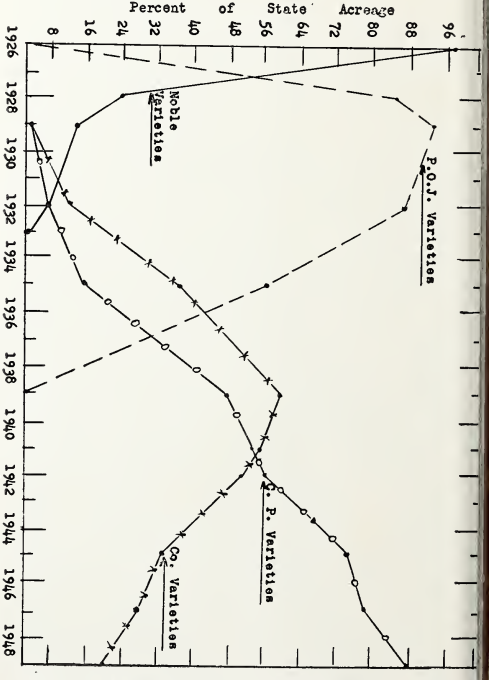

Fig. 1. Changes in the distribution of Louisiana sugarcane acreage among important groups of varieties during the period 1926-1949, inclusive.

cent of the acreage in the southeastern area, and maintains a place of major importance in the northern area, but is of little importance in the western area. The total acreage devoted to C. P. 34-120 showed a very slight increase between 1947 and 1949.

C. P. 36-105 released for commer-

Table 1. Percent distribution of sugarcane acreage according to variety in the 3 principal areas of the Louisiana Sugar District.

1949 Crop

Area	Variety												Percent of State Acreage**
	C. P. 34-120	C. P. 36-105	Co. 290	C. P. 29-320	C. P. 29-116	C. P. 29-120	C. P. 36-13	C. P. 29-103	C. P. 36-183	C. P. 33-310	C. P. 36-19	Other Varieties	
Southeastern (1)	38.9	28.5	1.4	9.4	1.3	10.9	5.4	1.2	0.3	0.1	0.4	2.2	46.26
Southwestern (2)	4.4	12.2	42.8	0.3	27.3	0.9	0.9	6.4	1.6	1.4	0.5	1.3	35.94
Northern (3)	29.2	11.0	0.2	48.6	0.3	4.7	3.4	0.2	0.2	*	*	2.2	16.49
18 Parishes	24.72	19.64	16.28	12.63	10.60	6.22	3.43	2.93	0.76	0.56	0.37	1.86	98.69

Varietal Increase (+) or Decrease (—) in percent of State Acreage

Period	Variety											
	C. P. 36-105	C. P. 36-13	C. P. 36-183	C. P. 34-120	C. P. 36-19	C. P. 33-310	C. P. 29-116	C. P. 29-103	C. P. 29-120	C. P. 29-320	Co. 290	
From 1947 to 1949	+15.62	+2.93	+0.70	+0.30	+0.30	—0.15	—0.59	—2.15	—3.31	—4.44	—8.95	
From 1945 to 1949	+19.34	+3.40	+0.76	+7.58	+0.37	+0.05	—0.34	—3.57	—1.17	—9.62	—11.58	

* Less than 0.1% included in "other varieties".
** Based on information supplied by Mr. W. M. Grayson.
(1) Ascension, Assumption, Lafourche, St. Charles, St. James, St. John and Terrebonne.
(2) Iberia, Lafayette, St. Landry, St. Martin, St. Mary and Vermilion.
(3) Avoyelles, Iberville, Pointe Coupee, West Baton Rouge and Rapides.

ial culture in 1945 now accounts for approximately 1/5 of the total cane acreage of the state. It comprises more than 28% of the southeastern acreage and has attained a place of major importance in both the southwestern and northern areas. The acreage devoted to C. P. 36-105 increased more than 4-fold between 1947 and 1949.

Co. 290 dropped from first place in 1947 when it occupied more than 5 percent of the state acreage to 3rd place in 1949. It now accounts for slightly more than 16 percent of current plantings. Acreage devoted to this variety is largely concentrated in the western area where it comprises 42.8% of local plantings.

Utilization of C. P. 29-320 is also declining sharply. This variety now ranks 4th in the state in point of acreage and accounts for 12.63 percent of present plantings. C. P. 29-320 attained its peak of importance in 1939 when it was grown on approximately one-fourth of the Louisiana acreage. It is still the leading variety in the northern area where it occupies nearly half of the present sugarcane acreage.

The acreage devoted to C. P. 29-116, now slightly more than 10% of the state total, registered a slight decrease between 1947 and 1949. Plantings of this variety are largely concentrated in the western area where they represent 27.3% of the local sugarcane acreage.

C. P. 29-120, planted largely in the southeastern and northern areas, is being grown on 6.22% of the 1949 acreage. In 1947 this variety accounted for nearly 10% of the state acreage.

C. P. 36-13 released in 1946 occupies 3.43% of the 1949 acreage. This variety is grown largely in the northern and southeastern areas.

C. P. 29-103 grown principally in the western area now accounts for 2.93% of Louisiana plantings. This represents a substantial decrease as compared with the acreage devoted to this variety in 1947.

C. P. 36-183, 33-310 and 36-19 occupy places of minor importance, each accounting for less than 1% of the total sugarcane acreage of the state.

Fig. 2 shows graphically the changes in the distribution of sugarcane

HAWAIIAN STEVEDORES' STRIKE SETTLED

The following information giving the settlement terms of the Hawaiian dock workers' strike was sent to *The Sugar Bulletin* by the Hawaiian Sugar Planters' Association:

1. *Wages.* A wage increase of 14 cents an hour on the basic hourly wage rate of stevedores, to be effective upon return to work.

2. *Retroactive Pay.* Adjustment of eight cents an hour to be paid for stevedoring work performed during the period March 1, 1949 to June 29, 1949, inclusive.

3. *Ports Other Than Honolulu and Hilo.* Wage adjustments to be negotiated by employer-employee bargaining units at these ports.

(Note: These terms are the same as recommended by the Fact Finding Board set up by Governor Stainback of Hawaii, and accepted by the employers. The terms were rejected by the International Longshoremen's Union June 30, 1949.)

4. *Extension of Contract.* The next contract opening March 1 1950 is extended until June 15 1951 by employer agreement of a pay increase of seven cents an hour beginning March 1, 1950, and the union agreement to extend all other provisions of the present contract to June 15, 1951.

5. *Effective Date.* Agreement effective upon acceptance of final draft by employers and employees.

---

acreage among important varieties during the period 1935 to 1949, inclusive.

Co. 290 released in 1933 reached it's peak of importance about 1939 when it occupied 41 percent of the Louisiana sugarcane acreage as compared with slightly more than 16% in 1949.

C. P. 29-320 released in 1935 was rapidly extended until 1939 when it was grown on 24.4% of the state acreage. Utilization of this variety declined slightly from 1939 to 1945 and very sharply from 1935 to 1949.

C. P. 29-116 and 29-120 released in 1936 and 1939, respectively, showed slight gains from year to year until 1947 but neither variety attained a place of primary importance in point of acreage. Utilization of both of these varieties is now on the decline.

C. P. 34-120 released in 1942 gained acreage rapidly and had reached a position of major importance by 1947. Utilization of this variety leveled off between 1947 and 1949.

C. P. 36-105 released in 1945 has been extended rapidly and now accounts for nearly 20% of the state acreage.

* The author is indebted to the following County Agents for assistance in procuring varietal acreage data for their respective parishes—

E. J. Lousteau, K. J. Ducote, W. E. Williams, R. J. Badeaux, Sidney Bowles, C. J. Arceneaux, A. B. Curet, A. J. Melancon, Jos. Lamendola, V. O. Calandro, A. K. Smith, P. J. deGravelles, Richard Sonnier, and A. E. Camus.

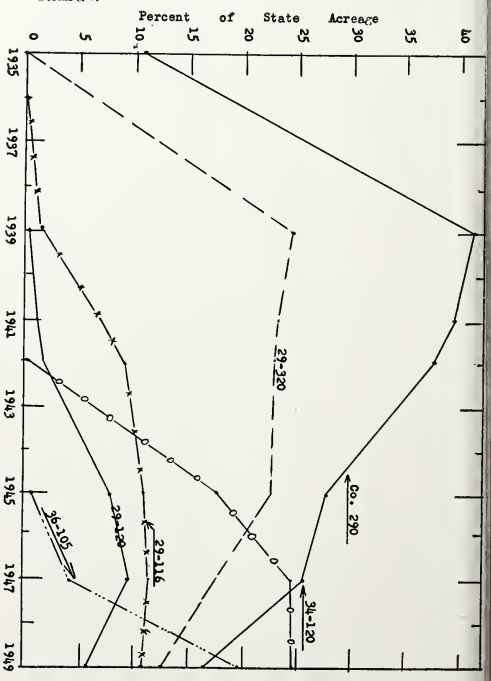

Fig. 2. Changes in the distribution of Louisiana sugarcane acreage among important varieties during the period 1935-1949, inclusive.

COMMERCIALLY RECOVERABLE SUGAR DETERMINATION REVISED

TITLE 7—AGRICULTURE
Chapter VIII
Production and Marketing Administration (Sugar Branch)
Subchapter E — Determination of Sugar Commercially Recoverable
(Sugar Determination 833.2)
PART 833—Mainland Cane Sugar Area
1949 and Subsequent Crops

Pursuant to the provisions of Section 302 (a) of the Sugar Act of 1948, the following determination is hereby issued:

§833.2 *Sugar commercially recoverable from sugarcane in the Mainland cane sugar area.* The amount of sugar commercially recoverable from the sugarcane grown on a farm in the Mainland cane sugar area and marketed (or processed by the producer) for the extraction of sugar shall be obtained by multiplying the number of short tons (net weight) of such sugarcane by the hundredweight of sugar, raw value, specified for the average percentage of sucrose in the normal juice of such sugarcane (computed to the nearest one-tenth of one percent) as follows:

(a) The rates shown in (b) and (c) hereof shall apply to the 1949 crop and the rates applicable to each succeeding crop shall be established by the Production and Marketing Administration from data for the next preceding five crops in a manner similar to that used in computing the rates applicable to the 1949 crop.

(b) For farms in Louisiana:

(Continued on next page)

DR. LAURITZEN RETIRES

Dr. John Lauritzen, widely recognized plant physiologist-pathologist of the U. S. Department of Agriculture, has just retired after 30 years of research work that has resulted in important improvements in the handling and storing of sweetpotatoes and other truck crops and of sugarcane. His findings are reducing risks for producers, handlers, and processors of these crops.

Born at Moroni, Utah, a graduate of Utah Agricultural College, with a Ph.D. degree from Cornell University, he came to the Department in 1918. For 12 years he investigated problems in the control of deterioration of vegetables in storage, principally sweetpotatoes, and developed the basis for procedures in handling this crop that practically eliminate losses from a number of formerly destructive rots. (It is based on understanding conditions that enable the roots to fortify injuries that otherwise permit entrance of rot fungi.)

Working during the past 18 years on the problems of losses from sugarcane diseases, he contributed largely to the development of facts that now save planters and sugar mill operators large sums formerly lost because of reduction of sugar content in cane after harvesting or while being held for milling.

Official records of Lauritzen's 30 years of scientific contributions are sprinkled with such comments as "commendable energy," "conscientious devotion to his work," "ingenuity in devising equipment," and "ability to get important results."

Dr. Lauritzen, who lived for many years at Chevy Chase, Md., except for 3 months each winter on sugarcane field work at Houma, La., plans to live at Pasadena, Calif.

LOUISIANA STATE UNIVERSITY LIBRARY

Percentage of sucrose in normal juice[1]	Hundredweight of Sugar
8.0	0.889
9.0	1.055
10.0	1.250
11.0	1.424
12.0	1.578
13.0	1.736
14.0	1.895
15.0	2.057
16.0	2.221
17.0	2.388
18.0	2.556

[1] Sugar recoverable for the intervening tenths of 1 percent shall be calculated by straight interpolation.

(b) For farms in Florida:

Percentage of sucrose in normal juice[1]	Hundredweight of Sugar
8.0	0.964
9.0	1.138
10.0	1.349
11.0	1.535
12.0	1.700
13.0	1.868
14.0	2.039
15.0	2.213
16.0	2.389
17.0	2.567
18.0	2.747

[1] Sugar recoverable for the intervening tenths of 1 percent shall be calculated by straight interpolation.

This determination supersedes, with respect to the 1949 and subsequent crops, the "Determination of Sugar Commercially Recoverable in the Mainland Cane Sugar Area (Revised)" issued October 1, 1948 (13 F.R. 5854).

Statement of Bases and Considerations

Sugar Act Requirements. Determinations of amounts of sugar commercially recoverable from sugarcane are required under Section 302 (a) of the Sugar Act for the purpose of computing payments.

Former determinations. The rates of recoverability specified in the initial determination for this area under the Act of 1937 were based on the average recoveries obtained by the mills in each State durin the crop years 1935 and 1936, ad justed for the lower recovery ob tained from the 1937 crop. Th customary basis of settlements be tween growers and processors fo sugarcane was recognized by basin recoverability in Louisiana on th percentage of sucrose in the norma juice of the sugarcane and in Flori da on the percentage of sucrose i the crusher juice. These rates wer revised in 1948 for two reasons (1) In Louisiana there was a sig nificant decline in sugar recover as compared with the base perioc largely because of the increase amount of trash delivered with can cut and loaded mechanically, (2 In Florida there was a substantia difference between the amounts o sugar actually recovered and th amounts computed under the deter mination.

The revised determination appl cable to the 1948 crop establishe recovery rates at the various su crose levels based on the averag recoveries obtained during the cro years 1942 through 1946. For Louis ana the rates were adjusted to net cane basis (gross weight les weight of trash in excess of thre percent). The rates established fo Florida were based on normal juic sucrose instead of crusher juic which largely eliminated the differ ence between actual and calculate recoveries. The 1947 crop was nc included in the base period becaus the recoveries were deemed to b unrepresentative. That crop wa grown and harvested under unfa vorable weather conditions. Th Louisiana crop was processed wit abnormally high trash and moistur content resulting in recoveries sub stantially below the average for th five preceding crops.

Basis of Revision. Unfavorabl weather conditions also affected th 1948 crops in Florida and Louisiana while machine cutting and loadin of cane in Louisiana resulted in th

elivery of stale and trashy cane. he recoveries from this crop were wer than for the 1947 crop. In iew of charges in recoveries, con- nued use of results for a past fixed ase period would be unjustifiable. t is believed that the adoption of ioving base periods comprised of ie five preceding crops will result i more representative rates. Any mprovement in recoveries resulting rom the 1949-Crop Sugarcane rice Determination, which was de- gned to obtain deliveries of better uality sugarcane, will be reflected i the rates applicable to succeeding rops.

The recovery rates will apply to ie net weight of the sugarcane. In lorida, the net weight of the cane ill be determined according to the ietliod followed for recent crops. i Louisiana, the net weight of the ane will be determined by reducing ie gross weight to a trash-free asis as defined in Sugar Determi- ation 874.2 issued September 26, 949. The rates were computed by pplying the Winter-Carp formula r determining available sugar to ie average results of all sugar mills perating in Louisiana and Florida, espectively, as reported on Forms U-123, Factory Run Report. The ecovery rates represent simple av- rages of the results for all of the rops 1944 through 1948, except that ie rates for Louisiana were ad- isted to show recoveries on the asis of trash-free sugarcane. The ecovery rates which will be applica- e to the 1950 and each subsequent rop will be established by the Pro- uction and Marketing Administra- ontion from corresponding data for ie next five crops in a manner simi- r to that used to establish the rates r the 1949 crop.

Accordingly, I hereby find and nclude that the foregoing deter- ination will effectuate the pur- ses of Section 302 (a) of the Su- ar Act of 1948 (Sec. 302, 61 Stat. 0; 7 U.S.C. 1132).

Issued this 20th day of October, 1949.

COMMERCIALLY RECOVERABLE SUGAR DETERMINATION (REVISED)[1] FOR LOUISIANA SUGARCANE

Hundredweights of Sugar, Raw Value, Commercially Recoverable per Ton of Sugarcane for Percentages of Sucrose in Normal Juice from 8.0% to 18.0% inclusive.

% Sucrose Normal Juice	Cwt. Sugar per Ton Cane	% Sucrose Normal Juice	Cwt. Sugar per Ton Cane	% Sucrose Normal Juice	Cwt. Sugar per Ton Cane
8.0	.889	11.5	1.501	15.0	2.057
8.1	.906	11.6	1.516	15.1	2.073
8.2	.922	11.7	1.532	15.2	2.090
8.3	.939	11.8	1.547	15.3	2.106
8.4	.955	11.9	1.563	15.4	2.123
8.5	.972	12.0	1.578	15.5	2.139
8.6	.989	12.1	1.594	15.6	2.155
8.7	1.005	12.2	1.610	15.7	2.172
8.8	1.022	12.3	1.625	15.8	2.188
8.9	1.038	12.4	1.641	15.9	2.205
9.0	1.055	12.5	1.657	16.0	2.221
9.1	1.074	12.6	1.673	16.1	2.238
9.2	1.094	12.7	1.689	16.2	2.254
9.3	1.113	12.8	1.704	16.3	2.271
9.4	1.133	12.9	1.720	16.4	2.288
9.5	1.152	13.0	1.736	16.5	2.304
9.6	1.172	13.1	1.752	16.6	2.321
9.7	1.191	13.2	1.768	16.7	2.338
9.8	1.211	13.3	1.784	16.8	2.355
9.9	1.230	13.4	1.800	16.9	2.371
10.0	1.250	13.5	1.815	17.0	2.388
10.1	1.267	13.6	1.831	17.1	2.405
10.2	1.285	13.7	1.847	17.2	2.422
10.3	1.302	13.8	1.863	17.3	2.438
10.4	1.320	13.9	1.879	17.4	2.455
10.5	1.337	14.0	1.895	17.5	2.472
10.6	1.354	14.1	1.911	17.6	2.489
10.7	1.372	14.2	1.927	17.7	2.506
10.8	1.389	14.3	1.944	17.8	2.522
10.9	1.407	14.4	1.960	17.9	2.539
11.0	1.424	14.5	1.976	18.0	2.556
11.1	1.439	14.6	1.992		
11.2	1.455	14.7	2.008		
11.3	1.470	14.8	2.025		
11.4	1.486	14.9	2.041		

[1] October 20, 1949.

THE MARKETS

THE MARKETS

(October 27th, 1949)

The final settlement of the dock workers' strike in Hawaii has, at least temporarily, had the effect of checking the advancing raw sugar market, but up to this writing there has been no definite indication that any big drop in prices is in the making. Sellers of raw sugars are still holding firm at the last paid price of 6.05 cents delivered New York but buyers are holding off and apparently awaiting developments.

No spot sales of Louisiana raw

sugars have been recorded since the start of the local pricing period on October 7th but raws are moving to the refiners under average price and price date of arrival contracts using the New York price, less the freight differential between New York and New Orleans, for payment purposes.

Unlike last season, when the freight differential was quoted as 5 cents a hundred pound throughout the entire Louisiana pricing period, this year the Louisiana Sugar Exchange, Inc., has quoted the freight differential as 3 cents, and on some days only 2 cents a hundred pounds. This means that the Louisiana sugar producers have, so far, received at least 2 cents and on some days 3 cents more per hundred pounds for their raws because of the smaller freight adjustment prevailing at the present time. The smaller freight differential is, of course, reflected in the quotations issued by the Exchange on Louisiana raw sugar and the cane farmers are receiving the benefits through higher weekly average prices for cane settlements.

The Louisiana Blackstrap Molasses market got off to a rather weak start when a quotable sale was reported by the Exchange at 5 cents a gallon on the first day of the selling period. Another sale was recorded ten days later, on October 17th, at the 5 cent price, but since that time there has been a very definite strengthening in the market with sales at 5¼ cents on October 19th and 20th, at 5⅜ cents on October 21st, and at 5½ cents a gallon yesterday and today (October 27th).

CROP NEWS

(Continued from page 37)

but the cane has been very green and one mill closed down for a week and will start again tomorrow (October 25th). The mills are jus idling along and using their ow cane. The small farmers could nc afford to harvest cane under th contract during the past two week Sucrose and purity are showin some improvement."

Iberia Parish. Grinding began i Iberia Parish on October 19th, ac cording to our report from W. I Williams, County Agent, dated Oct ber 24th. The canes are averagin 18 to 19 tons to the acre with su crose from 11.2 to 12.2 and purit 72.5 to 76.5. Mr. Williams repor the outlook for the season as fa to good but says that the mills ar getting off to a very slow star The canes are testing better in th Eastern part of his parish with C.I 36-105 and C.P. 36-13 showing u better in sucrose and purity.

St. James Parish. Thirty-eigl thousand tons of cane had bee ground in St. James Parish by Oct ber 24th when Joseph Lamandol County Agent, sent in his repo and the percentage of trash in th cane had averaged 6.9%. Mr. L mandola says that grinding oper tions began in his district on Oct ber 13th and that the canes we averaging about 11.3 in sucrose ar 74.40 in purity. The tonnage pr duction was running about 22 to to the acre.

Assumption Parish. Reportin from Napoleonville on October 26t E. J. Lousteau, County Agent Assumption Parish states that grin ing operations began in his distri on October 11th. "According to th figures received from the vario mills", Mr. Lousteau says, "the s crose is averaging about 11 and pu ity is around 73. The average yie per acre at present is about 20 ton This yield per acre should increa as the planters start cutting the better stubble and their plant cane

Mr. Lousteau says that everybo is expecting the sucrose and puri to improve as the weather improve

AYMENTS

(Continued from page 36)

(iii) For each year of the applicable base period, the "county average ield" shall mean the weighted average hundredweight of sugar commercially recoverable per planted cre from all proportionate share ugarcane (excluding seed sugarane) in the county, except that if he total number of farms or parts f farms producing such sugarcane as less than five for any such ear, the county average yield for uch year shall be the yield established by the State PMA Committee n the basis of the field which could ave been reasonably expected that ear in such county.

(iv) The "county normal yield" hall mean the simple average of the ounty average yields for all the ears of the applicable base period or which county average yields are stablished on the basis of five or nore farms or parts of farms, except that if county average yields re not so established for three or nore years of the applicable base eriod, the county normal yield shall e the yield established by the State 'MA Committee on the basis of the verage yield which could have been easonably expected in the county uring the applicable base period.

(b) Eligibility for abandonment nd deficiency payments The County gricultural Conservation Committee shall approve for abandonment nd deficiency payments any farm ocated in whole or in part in a ounty or local producing area, as efined herein, in which the actual ields of commercially recoverage ugar from 10 percent or more of he average planted to sugarcane n all farms or parts of farms in uch county or local producing area, ere not in excess of 80 percent f the applicable normal yields: rovided, That (1) such acreage bandonment or crop deficiency was irectly due to drought, flood, storm, reeze, disease or insects; (2) the acreage that was abandoned or the acreage with respect to which there was a crop deficiency was suitable for the production of sugarcane and was cared for up to the time of harvest or abandonment, as the case may be, in a manner which could have been expected under average conditions to produce a normal crop of sugarcane, and (3) the other conditions for payment specified in Title III of the act with respect to the farm have been met. Such approval on the application for payment by a member of the County Agricultural Conservation Committee on behalf of such committee shall constitute determination that such farm is eligible for abandonment and deficiency payments.

A "local producing area" shall include all contiguous, or nearby farms or parts of farms which are similar with respect to types of soil or with respect to topography, as determined by the Agricultural Conservation Committee for the county in which the farm is located: Provided, however, That farms separated from other farms by any natural barrier or large area of land shall not be included within the same local producing area.

This determination supersedes with respect to the 1949 and subsequent crop years the determination of "Normal Yield of Commercially Recoverable Sugar per Acre and Eligibility for Payment with Respect to Abandonment and Crop Deficiency for Farms in the Mainland Cane Sugar Area (Revised)" issued August 28, 1945, and the determination of "Normal Yields of Commercially Recoverable Sugar per Acre and Eligibility for Payment with Respect to Abandonment and Crop Deficiency for Sugarcane Farms in Florida in 1947 and Subsequent Crop Years" issued December 8, 1947.

Statement of Bases and Considerations

Requirements of the Sugar Act.

Section 303 of the Act authorizes the Secretary to make payments to producers of sugarcane with respect to bona fide adbandonment of planted acreage and crop deficiencies of harvested acreage under certain conditions. The payments are based on normal yields of commercially recoverable sugar as established for individual farms under determinations issued by the Secretary.

Historical background. Normal yields for farms in the Mainland cane sugar have been based heretofore on the average yields of commercially recoverable sugar obtained per acre during base periods consisting of a number of crop years (usually three) deemed to be representative of the yields to be expected under normal conditions. The crop years selected were not necessarily consecutive nor were they always the most recent.

Current situation: In recent years the yields of sugar per acre in both States have declined significantly. Consequently, the yields obtained in the former base periods are no longer representative. The decline has been due in part to the increased use of machinery in harvesting the crop. Sugarcane cut and loaded with mechanical equipment has contained greater quantities of trash and dirt than that harvested by hand. Moreover, a larger proportion of the cane has become stale between the time of cutting and the time of processing.

Base periods. The use of fixed base periods covering selected crop years does not adequately reflect changes in yields. It also tends to benefit those producers who obtained abnormally high yields in the selected base years, while the effect is the reverse as to those producers who obtained subnormal yields in the base years. It is believed that the use of moving base periods will reflect current changes more adequately, will assure equitable treatment among all producers, and will provide a sounder basis for the Com putation of acreage abandonmer and crop deficiency payments. Th situation requires a gradual trans tion to a five-year moving base pe riod, because of the heavy workloa which would result for county o fices in Louisiana in determinin and accumulating production dat applicable to approximate 6,000 su garcane farms of which about 2 percent are reconstituted in area an nually. The crop year 1947 has bee excluded because that crop was s subnormal that its inclusion in relatively short base period woul not give reasonably representativ results.

Computation of farm norma yields. The normal yield for eac farm having a sugarcane productio record for more than two years o the applicable base period will b computed by averaging the annua yields obtained on the farm withi such period. Accordingly, the nor mal yield for such a farm will repre sent the average yield for three four or five years, depending upo the length of both the record an the base period.

The former determination pro vided that if sugarcane was not ha vested on the farm during each yea of the base period, the normal yiel was based upon the yields for farm in the vicinity without regard to th farm's production record. In som cases, this resulted in the establish ment of normal yields which wer not realistic. However, the preser determination provides that if su garcane was produced in only one o two years of the base period, th percentage relationship of the yiel for the farm to the county averag yield for the corresponding year o years is computed and the norma yield is related to the county norma yield. If no sugarcane was harves ed from the farm during the bas period, the normal yield is establish ed at 90 percent of the county nor mal yield. It is likely that the yield

btained on most farms producing ugarcane for the first time will fall elow the yields of other sugarcane arms.

The former determination also rovided for the computation of the ormal yields for reconstituted arms by using the normal yields s calculated for parts of the farm nd weighting such normal yields by he acreage of cane on each such art in the preceding crop year. ince this provision was applicable a few, but not all farms which ere made up of several parts, it as been eliminated from this de-rmination and the normal yields r reconstituted farms will be de-rmined from the production rec-ds within the base period applica-e to all of the land constituting ch farms. The actual records will e used whenever available, other-ise the production records will be tablished for the land in accord-nce with instructions issued by he Production and Marketing Ad-inistration.

Eligibility for abandonment and efficiency payments. The provisions garding eligibility for these pay-ents have been in effect for sev-al years and have proven to be en-rely satisfactory. The revision of her provisions of the determina-on will in no way affect the work-bility of these provisions. Accord-gly, no changes are deemed to be ecessary.

Accordingly, I hereby find and nclude that the foregoing determi-ation will effectuate the provisions section 303 of the Sugar Act of 948.

Issued this 30th day of September, 949.

A. J. Loveland,
Acting Secretary

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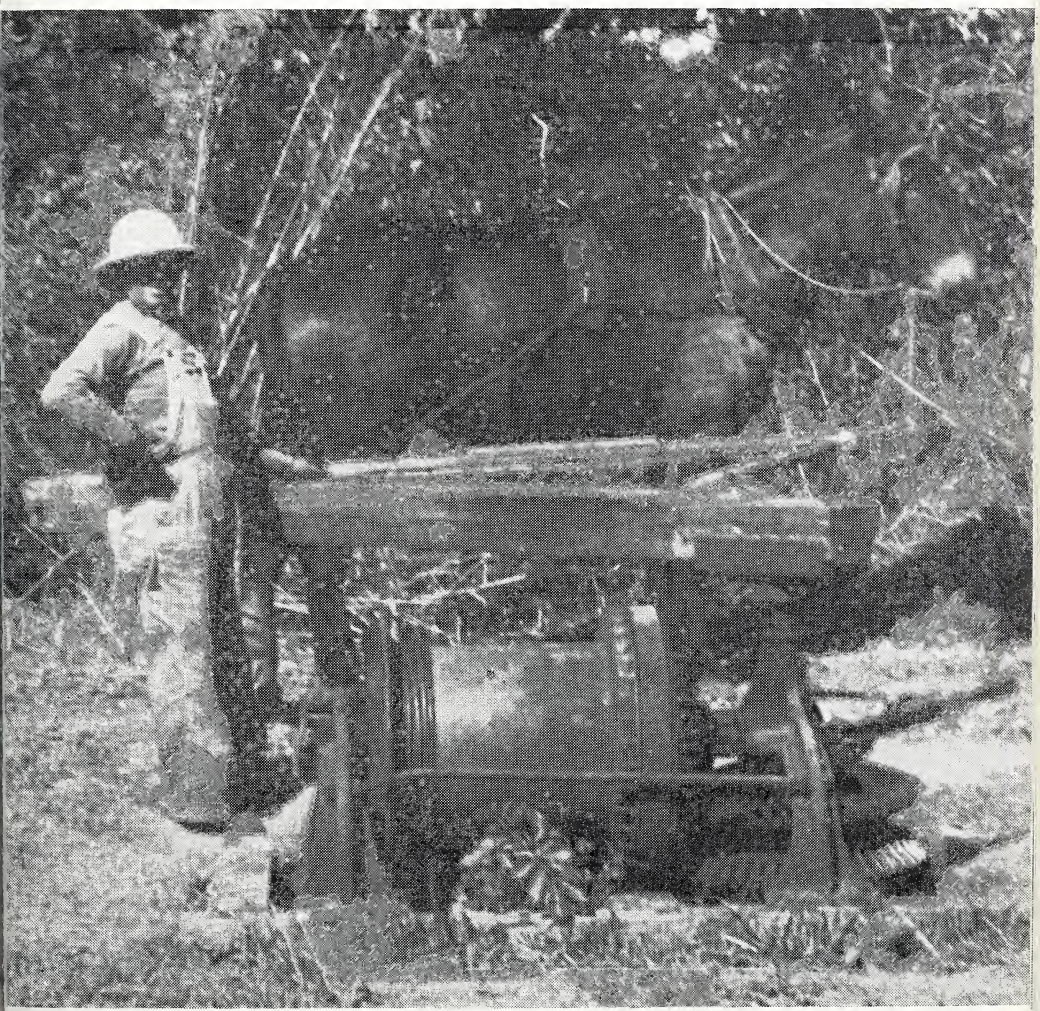

Old Timers at Work

THE
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MARCEL J. VOORHIES, Editor

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In Washington With C. J. Bourg

With the approach of the hearing on November 30, 1949 regarding he Consumption Estimate for 1950, we have a suggestion from one of our nembers that a comparison should be made of the average prices for sta-)le foods since the turn of the century.

Year	Steak Lb.	Pork Chops Lb.	Corn Meal Lb.	Bacon Lb.	Chicken Lb.	Ham Lb.	Potatoes Lb.	Eggs Doz.	Butter Lb.	Milk Qts.	Lard Lb.	Flour Lb.	Sugar Lb.
1900	13.2	11.9	1.9	14.3	13.4	16.3	1.4	20.7	26.1	6.8	9.9	2.5	6.1
1948	90.5	77.2	10.8	76.9	61.3	68.0	5.6	72.3	86.7	21.8	29.6	4.9	9.4
% of ncrease	585	548	468	437	357	317	300	249	232	220	200	100	54

We have chosen staple foods which are normally bought by the Ameri-an housewife (when she can afford it) and we are impressed with the esulting figures. It pleases us to find that the 54 percent increase in the)rice of sugar is extremely low and compares very favorably with other laily foods, particularly steak (585%) and pork chops (548%)

The disappointing feature to the grower of sugarcane and sugar beets s the fact that the cost of production has mounted greatly in the past 18 years and sugar has not been permitted, under the administration of he Sugar Act, to keep pace with such increases, this notwithstanding hat Section 201 of the Sugar Act definitely contemplates that the far-ner and the processor should receive prices for their sugarcane and raw ugar, or sugar beets and beet sugar, which reflect increases in the cost)f production since the first ten months of 1947, before sugar was de-ontrolled. The latest cost of living index as of September 15, 1949 is 69.6, but sugar at 8.05 cents wholesale, refined, is well below the index)rice, which would be 8.89 cents.

Public Hearing on U. S. Sugar Consumption requirements and Quotas for 1950

The U. S. Department of Agriculture announced on November 2nd hat a public hearing will be held November 30, 1949, in connection with he determination of 1950 sugar consumption requirements for continen-al United States and the establishment of market quotas, as authorized)y the Sugar Act of 1948. The hearing will be held at 9:30 a.m., in the Auditorium, South Building, Department of Agriculture, Washington, D. C.

It was also announced that in addition to the public hearing, the De-)artment would receive for consideration briefs from any interested party)n the matters to be discussed at the hearing and also on: (a) the deter-nination of local consumption requirements for Hawaii and Puerto Rico nd the establishment of quotas for these areas for 1950; (b) the deter-nination and reallotment of the amount of sugar by which any domestic rea, the Republic of the Philippines, or Cuba will be unable to market its uota in 1949.

Persons desiring to submit briefs relating to any or all of these sub-ects shall submit them, *in quadruplicate*, addressed to the Director, Sugar Branch, Production and Marketing Administration, U. S. Department of Agriculture, Washington 25, D. C. Briefs must be received no later than December 12, 1949.

EFFECT OF QUALITY OF CANE ON RAW SUGAR FACTORY CAPACITIES

by E. L. Denis

Presented at the meeting of the Manufacturing Section, Houma, La., June 22, 1949

The "QUALITY" of sugar-cane may be well divided into two parts —that is the physical quality of the cane and the chemical quality of the cane. In other words, quality of the sugar-cane will not only affect the production of sugar by a raw sugar factory by means of its physical condition, but also by its chemical condition.

From a milling standpoint—quality of cane has to do with the fiber content and the trash content of the cane as it reaches the mills. The trash content includes cane leaves, weeds and grass, cane tops, dirt and mud. These qualities are considered in this paper as the physical qualities of the sugar-cane, and shall be discussed as affecting the capacities of factories. From a manufacturing, or fabrication, standpoint the quality of cane refers to its degree of maturity, its freshness at the time of grinding and whether the cane is properly topped. The trash content of the cane also affects the quality of cane from a fabrication angle.

It might be stated that the milling capacity as affected by the percentage of fiber in cane has no effect in itself on the manufacturing or fabrication process—either favorably or unfavorably. The trash content of sugar-cane, however, does affect manufacturing. The same applies to the mud or dirt content of the cane as ground.

In general, it may be stated that in grinding poor quality cane that there are more factors that affect the manufacturing process than affect milling capacity.

The quality of cane in Louisiana began to depreciate with the beginning of labor shortages on the farms in the late 1930's. Deterioration of the quality of sugar-cane has progressed directly in proportion to the increase of mechanical harvesting and loading, which, of necessity, has been forced on the industry and has now become a menace to the survival of a sugar-cane factory, as such, as it is practically impossible for a factory to operate at a profit under the existing contracts for purchase of sugar-cane by the factories. The capacity of sugar mills during this period of deterioration has been maintained fairly constant with respect to the tons of cane ground per day, however, this has been done at the expense of lower extraction by the mill tandems.

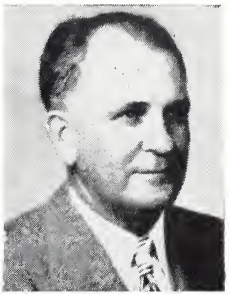
The term "mill capacity" as ordinarily used in the industry, is a very flexible term. It is very possible to increase the grinding rate of a mill tandem as much as 30 to 40% by changing of the mill groovings, mill settings, roll speeds and the use of forced feed equipment, etc. The actual grinding capacity of a mill in tons per day may, therefore, under certain conditions of sacrifice of mill work rise to the emergency of grinding the amount of cane necessary to take off any crop, and the degree of efficiency that the mill will operate will not only depend upon the number of rolls in the mill tandem, the hydraulic pressure applied and the amount of maceration water used, but also under the control of the Chief Engineer by adjustment of other physical factors. With no change in equipment, it may be stated that an increase in capacity is accompanied by a decrease in the sucrose extraction. In maintenance of hourly grinding rate as the quality of cane depreciates the results will be reflected

YOUR COUNTY AGENT REPORTS

Crop Report for Iberia Parish as of November 10, 1949

by

W. E. Williams, County Agent
Iberia Parish, Louisiana



MR. WILLIAMS

Approximately 120,000 tons of Iberia Parish sugarcane has been ground into sugar to date.

The 5 mills operating in the parish have ground a total of 90,000 tons. It is estimated that approximately 30,000 tons have moved to mills in adjoining parishes for processing.

A composite summary of sucrose purity and recoverable sugar for the 5 mills operating in the parish show that the sucrose has averaged 11.91 with a purity of 75.74 to date. The average recovery of 96° raw sugar for the parish mills being 157.7 lbs. per ton of cane.

This summary shows that the cane has been averaging just under par which is cane containing 12% sucrose with a purity of 76.50 with an estimated 157.8 lbs. of sugar per ton recoverable.

However, mills in all sections of the parish report that the sucrose is running a little above par for the past couple of days. It is estimated that a little less than 20% of the crop has been harvested as of this date.

Mill records show that varieties such as C.P. 36-105, C.P. 36-13, C.P. 34-120 are showing relatively high sucrose and purity while other varieties such as CO-290 and C.P. 29-116 are showing relatively low sucrose and purity.

---

n poorer mill work. This has been borne out in Louisiana.

It has been necessary for management to arrange for delivery of ane to the factory at the same ates, or higher, that prevailed beore the quality of the cane had deeciated to its present point. The Chief Engineer is expected, and has o maintain the same hourly grindng rate as before, or even, in many ases, to increase it. He is only able o do this by sacrificing extraction s this is the only course he is able o follow.

On the other hand, it has been ery difficult for the Superintendnt to maintain the same capacity as before the advent of mechanically harvested cane, even though on a tonnage basis apparently the fabrication department would have been helped through the factor of decreased extraction by the mills, resulting in a smaller volume of juice to be handled per ton of cane ground.

On the other hand, there never has been; and probably never will be, any method for clarifying cane juice from poor quality cane with the same speed and efficiency as is possible with juice from good quality cane. With the exception of sour cane, which results from early

(Continued on Page 59)

WEED CONTROL IN SUGARCANE

Department of Plant Pathology
Louisiana Agricultural Experiment Station

Presented September 1, 1949
By E. R. Stamper and S. J. P. Chilton

The problem of controlling weeds satisfactorily in sugarcane fields with less and less hand labor is becoming of dominant concern to the sugar industry of Louisiana. A great deal of experimental work is underway by Federal investigators, members of the industry, and the Louisiana Agricultural Experiment Station. It is the purpose of the meeting today to discuss the various phases of weed control. This paper brings together the general results of the Experiment Station and tentative recommendations as a basis for discussion.

Johnson Grass Control

This pest will be discussed first since it is undoubtedly the major weed in sugarcane culture.

At present the most feasible control method for cleaning up infested fields seems to be the use of fallow plowing (summer plowing) to eliminate the large Johnson grass plants and to kill the rhizomes (roots). This procedure has been remarkably successful in ordinary years in handling the problem and there is no chemical available or in sight which will approach this method in cost, estimated to be $12.50 to $15.00 an acre. A knowledge of the best time to fallow plow, how far apart plowings should be made for most efficient kill, and the minimum plowings necessary under various conditions, should permit a reduction in the cost of this procedure. Oftener and closer plowing of the ditchbank rows would materially improve the program. This of course does not take care of the seedling problem where present.

Many of the soils of the state are badly infested with Johnson grass seed, and plant cane becomes reinfested by seedlings which grow and set rhizomes in the plant cane, materially reducing stubble yields. While in most cases relatively few seed are produced in plant cane in fallow plowed land, many seed are produced in the stubble crop and there is a build up of seed in the soil again. This requires a program designed to prevent the reinfestation of plant cane by seedlings. It should also prevent the addition of new seed to the soil until the seed already present have been reduced to a reasonable level.

A large number of chemicals have been tried by various individuals as pre-emergence sprays. Three seem to offer the most promise either alone or in combination. They are 2,4-D, 2,4-D plus pentachlorophenol and the trichloroacetates. The trichloroacetates at present are comparatively expensive for use on a large scale but offer certain possibilities requiring their investigation and they will no doubt be reduced in price in the future. A combination giving good results in 1948 and 1949 was 2,4-D followed by flaming.

In order to obtain as much information as possible on a large scale under field conditions, tests designed to measure the efficiency of these methods were initiated in 1948 by the Experiment Station and carried through 1949.

They were made on a field scale with three-row sprayers and field equipment. Seventy-seven acres were treated with the various chemicals. The results based on August counts may be summarized as follows:

2,4-D alone (16.58 acres) gave 64.3 per cent control of seedlings.

(Continued on page 57)

AMMONIA AND THE NITROGEN REQUIREMENT FOR SUGAR CANE IN LOUISIANA

by M. B. Sturgis

The average application of commercial nitrogen per acre to sugar cane has increased from 32 pounds in 1941 to 50 pounds in 1949. This increase has been stimulated by the large developments in the production of cheaper sources of nitrogen, particularly anhydrous ammonia and ammonium nitrate. Their use has given excellent results and has compensated in general for the slackening off in the amount of nitrogen being turned under in legumes. The use of more commercial nitrogen is also compensating for the increased liberation and loss of humus nitrogen brought about through summer fallowing associated with the control of Johnson grass. Fertilizer trials and experiments are showing that where large amounts of legumes (10 tons or more green weight per acre) have not been turned under 40 pounds of commercial nitrogen can be profitably applied to plant cane. The tests are also showing that 60 to 80 (to 100 under some conditions) pounds of nitrogen should be applied to stubble cane. To put it another way, it can be said that unless we turn under at least 120 pounds per acre of nitrogen in legumes we shall need to add some commercial nitrogen to plant cane. Legume nitrogen may be from 35 to 70 per cent as effective as commercial nitrogen.

The use of phosphate and potash fertilizers on the heavy soils has not yet been established as good practice, but on soils of medium texture and relative low organic matter content (1.6-2.0 per cent) and shallow topsoil the use of 60 to 80 pounds of nitrogen per acre with 25 to 40 of P_2O_5 and 40 to 60 pounds of K_2O applied to stubble cane is giving good results.

How low can we let the organic matter content fall or how much nitrogen can we supply commercially? What is the relation of the depth of organic penetration and good physical condition to feeding zone of the roots and the amount of nutrients which they can absorb. How great is the importance of the depth of topsoil? We at least have some tentative standards. For the silt loam soil we can not have less than 1.6 per cent organic matter or .08 per cent nitrogen to a depth of 7 inches and be able to maintain physical conditions which will allow us to average 20 ton cane yields. Likewise for clay loam the organic matter must be kept at not less than 2.4 per cent or 0.12 per cent nitrogen to a depth of 7 inches. It has already been established that under conditions as given above at least 40 per cent of the nitrogen used by sugar cane can be supplied as commercial nitrogen. This is being done now. We are using about 7,000 tons of commercial nitrogen annually. If the average yield of cane were raised to 30 tons per acre 11,000 tons of commercial nitrogen would be required provided we increased our organic matter proportionately. Should we fail to increase the organic content in our soils we would have to use 17,000 tons of commercial nitrogen. With the general poor physical condition now existing in the soils there are limitations on the use of nitrogen and the yield of cane. By increasing the depth of the soils and the organic penetration and granulation we can effectively use more commercial nitrogen and increase the yield of cane.

It takes 6 pounds of nitrogen absorbed by the crop to produce one

(Continued on next page)

ton of sugar cane. About 3 per cent of the humus nitrogen in a soil becomes available to a crop of stubble cane. A soil containing .08 per cent nitrogen to a depth of 7 inches would furnish about 51 pounds of nitrogen to the crop on such a soil. Seventy pounds of commercial nitrogen would have to be added to obtain a 20 ton yield.

We need more nitrogen, but can we use it without increasing the depth of our surface soil through organic penetration? Certainly there are limits in organic content and depth of surface below which we can not fall.

In the past few years due to the shortage of nitrogen, we have not been able to make much to do about the use of definite nitrogen carriers. It has been considered well enough to take what nitrogen we could get in whatever form we could get it in. The two most important products new on the market in Louisiana now are ammonia and ammonium nitrate. Out of a total net supply in the United States 955,000 tons of nitrogen, ammonia for direct application amounts to 45,000 tons per year. Ammonium nitrate amounts to 134,000 tons of nitrogen per year. In Louisiana, however, ammonia accounts for a relatively larger percentage of our nitrogen. Out of a total nitrogen supply, approximately 25,000 tons of nitrogen, ammonia accounts for 5,000 tons. Ammonium nitrate for direct application exclusive of that in nitrogen solutions, accounts for 7,000 tons of nitrogen. As time goes on ammonia and ammonia nitrate will continue to be more and more important as sources of nitrogen in Louisiana, and we must recognize the peculiarities of these materials.

Ammonia is especially well adapted for use on sugar cane. In general nitrogen is the only element applied to cane. The ammonia can be applied early with minimum leaching losses. Ammonia will continue to be the cheapest source of nitrogen and the easiest to apply. Even in the case of the application of minerals, the minerals can be applied at the rate of 300-400 pounds of per acre of 6-8-12 from hoppers on the sides of the tractor while 60 pounds of nitrogen as ammonia is being delivered in the soil through the regular applicators. Ammonia lends itself well to preplanting and split applications. These are subjects that must be worked out.

THE MARKETS

(November 11th, 1949)

Raw sugar prices have shown a tendency to weaken during the two weeks since our last report. The settlement of the Hawaiian dock workers' strike is probably the primary cause for the slump in prices but this should be coupled with the fact that the strike of the warehousemen at the big Crockett refinery of the California & Hawaiian Sugar Refining Corporation has diverted the resumed shipments of Hawaiian raw sugar from the West to the East coast. On October 26th C. & H. announced that pending the settlement of the strike at the Crockett refinery no raw sugar would be shipped from Hawaii to the Pacific Coast and it is estimated that this decision has made about 175,000 tons of raw sugar available to the East Coast and Gulf refiners that otherwise would not have been offered to them. The U. S. Secretary of Agriculture increased the Cuban and Puerto Rican allotments to offset the shortage of Hawaiian sugar caused by the dock workers' strike and now this "shortage" is competing with the "increased allotments" to depress prices.

No spot sales of Louisiana raw sugar have been recorded since the start of the grinding campaign.

The market for Louisiana Black

(Continued on page 63)

VEED CONTROL

(Continued from Page 54)

Amine salt of 2,4-D + pentachlo-)phenol (11.11 acres) gave 76.6 per ent control.

Sodium salt of 2,4-D + flaming 17.15 acres) gave 89.0 per cent con-ol.

Amine salt of 2,4-D + flaming 19.33 acres) gave 96.4 per cent con-ol.

Sodium trichloroacetate (12.82 res) gave 93.5 per cent control.

From the information obtained is year on seedling control, the llowing program should permit onomic control of reinfestation by hnson grass seedlings.

Fall Treatment

If cane is planted before October it is advisable to spray the sur-ce of the drill with 2,4-D imme-ately after planting, or better as on as it rains. This should be ap-ied as a band on the drill 24 to 30 ches wide at 2 lbs. acid equiva-nt per acre, the actual amount ed per acre being 2/3 lb. acid uivalent on a band 24 inches wide. edlings which survive in the drill ould be flamed before roots are rmed, usually two to three weeks ter.

If no flamer is used, pentachloro-enol plus 2,4-D at 6 gallons to the re may be used and should be ap-ied on the drill directing the spray ward the base of the cane shoots fore surviving seedlings are 3 ches high. This will require 2 llons per acre on a band 24 inches de plus 2/3 lbs. acid equivalent 2,4-D. In the 1949 test, 2,4-D + ming was more efficient than ntachlorophenol + 2,4-D.

The sides and middles of the rows ould be cultivated to destroy seed-gs other than on the treated band the drill, care being taken that e cultivation overlaps the sprayed nd. The treated band should not disturbed.

A rogueing should usually be made remove the plants which remain before they produce rhizomes.

Cane planted after October 1, is usually safe from seedling reinfesta-tion in the fall. It is advisable to make a rogueing to remove plants coming from rhizomes which have not been killed by the fallow plow-ing.

Spring Treatment

The drill should be sprayed with 2,4-D as soon after shaving and off-barring as possible. If off-barring is done much later than shaving the drill should be sprayed after shav-ing. It is important that seedlings do not sprout and come above the surface before the spray is applied. Flaming should be done as in the fall, and another drill spray of 2,4-D applied whenever the soil is disturbed. If flaming is not used, pentachlorophenol plus 2,4-D at the same rate as in the fall should be applied on the drill. Care should be taken in the cultivation opera-tions that no row of seedlings is left between the treated drill and the cultivated area. Immediately af-ter the layby cultivation, a blanket spray of 2,4-D should be applied at 2 lbs. acid equivalent per acre. A rogueing should be made before seedlings which have been missed have set rhizomes.

Cost per acre of the Treatments

The approximate costs per acre of the treatments given above follow.

2, 4-D + flaming

2, 4-D (3 drill sprays and 1 blanket spray)	4 lbs. at 1.25 per lb.	$5.00
Flaming (2 flamings)	2 at .80 each	1.60
Spray application (4 applications of 2, 4-D)	4 at .35 each	1.40
Rogueing (1 rogueing in fall and 1 rogueing in spring)	6 hrs. at .40 hr.	2.40
	Total per acre in plant cane	$10.40

2, 4-D + pentachlorophenol

2, 4-D (2 drill sprays with 2, 4-D only and one blanket spray with 2, 4-D only. 2 drill sprays with pentachlorophenol + 2, 4-D)	4 2/3 lbs. at 1.25 lb.	$5.83
Pentachlorophenol (2 drill sprays at 2 gallons per acre)	4 gal. at .75 per gal.	3.00
Spray application (5 sprayings)	5 at .35 each	1.75
Rogueing (1 rogueing in fall and 1 rogueing in spring)	6 hrs. at .40 hr.	
	Total per acre in plant cane	$12.98

If there are fields which have been allowed to get by without adequate control of seedlings, T. C. A. at 30 lbs. to the acre of the 100 per cent material (10 lbs. on the drill 24" wide) will kill most of the seedlings up to 8 inches tall.

Cost of chemicals will vary depending on market and quantities bought.

Stubble Cane

It has been observed that if plant cane is kept free of Johnson grass, first stubble starts out clean. If it is desired to kill Johnson grass plants which have escaped the control program in plant cane, sodium chlorate plus calcium chloride or the trichloroacetates may be used for spot treatment. Amounts which have been efficient in 1949 are two lbs. of sodium chlorate + one lb. of calcium chloride per gallon of water and one lb. of 100 per cent trichloroacetate per gallon of water. Sodium chlorate is cheaper but the trichloroacetates are less harmful to the cane and soil in the treated areas.

It is probably that a 2,4-D application on the drill following shaving, a flaming or a pentachlorophenol plus 2,4-D application before the seedlings which appear get too tall, and a layby blanket spray of 2,4-D would be of sufficient value in preventing further infestation by Johnson grass and reducing infestation with other weeds to justify the program.

L. Godchaux applied sodium chlorate in badly infested stubble cane in 1948 and obtained economic control of Johnson grass and increase in cane yields. Six tests have been made by the Experiment Station using various rates of chlorates and trichloroacetates but final results are not as yet available.

Ditchbanks and Headlands

The eradication of Johnson grass on ditchbanks and headlands will be of value when a control program is in progress in the cane planted in fallow plowed land, and it is seen that it will reduce reinfestations i the field.

At present sodium chlorate is th only chemical cheap enough to us on a large scale. In general it ha been found that about 600 lbs. o sodium chlorate (plus 300 lbs. o calcium chloride as a safener) pe acre are necessary for adequate kil although 450 lbs. (plus 225 lbs. o calcium chloride) has worked i many cases. Best results seem to b obtained if the chemical is applie when the Johnson grass has heade

The cost per acre for this chem cal at 11 cents per lb. for the sodiu chlorate and 3 cents a lb. for th calcium chloride is $75.00 an acr if 600 lbs. of the chlorate is applie per acre. Translated into ditchbar area, the chemical needed for a 8 ft. wide ditch would be $72.80 mile or about $2.90 a running ac of ditchbank. If close fallow plow ing is practiced and the ditchbar is narrowed with ditchbank plow to 6 ft., the cost for chemicals wou be approximately $54.50 a mile o $2.20 a running acre of ditchban

If properly done, spot treatme to kill surviving plants should not b more than a sixth of the initial cos

The natural flora which will con in should not be disturbed by mow ing the ditchbank for at least on year after application of the chem cals.

If any program where chemic control of Johnson grass on th ditchbanks and headlands is pra ticed, the areas to be treated shou be reduced to the minimum by clo and continual plowing.

Alligator Weed

This weed, alarming in its ra of spread and potential harmfulne to sugarcane a few years ago, is n considered at present to be of ar importance. One 2,4-D applicatio at 3/4 to 1 lb. acid equivalent p acre will bring it under contro

Tie Vines

These weeds are easily controlle with 2,4-D. It has been the experien

the Experiment Station personnel
iat a layby spray of 2,4-D will re-
ıce infestations considerably. If
)t sufficiently controlled by this
:actice an application of 2,4-D at
lb. acid equivalent per acre after
yby and when the tie vines have
me up should give satisfactory re-
lts as pointed out by Dr. Arce-
aux.

Red Root

This weed, a species of Setaria,
ems to affect certain areas rather
verely, particularly where Johnson
ass is not offering competition.
2,4-D drill spray after shaving,
ıd a blanket layby spray has given
)od control of this weed. The rates
e the same as for Johnson grass.

Other Weeds

Most broadleafed weeds in sugar-
ne fields can be killed with 2,4-D.
asses in general can be controlled
pre-emergence sprays of 2,4-D.

UALITY OF CANE

(Continued from Page 53)

eezes, difficulty in settling of the
ice is due primarily to impurities
tracted from the trash in the cane
ps and to dirt of high colloidal
ntent entering the factory with
e raw juice. The latter, during
iny weather, presents a much more
ıbborn problem than the former.
ıe above sources cause excessive
lloidal matter to enter the juice,
ıch of which cannot be removed
ordinary clarification methods.
ıe result is decreased settling ca-
city, higher undetermined losses,
crease in loss to press cake, early
ıling of evaporators and pans, as
ll as juice beaters, poorer quality
gar produced, as well as higher
)lasses losses—all of which lead
decreased yield of sugar.

In an effort to maintain settling
)acity at the same rate as grind-
g capacity, many factories have
stalled additional clarifiers which
s resulted in increasing by a
eat amount the amount of thin
ces in process which certainly has a depressive effect on the yield of sugar as can be fully appreciated.

When the continuous rotary mud filters were originally installed in Louisiana it was a very easy matter to maintain sugar content in the cake produced from these filters as low as 1% to 1¼% without excessive use of water for washing a cake, and without production of excessive quantities of cloudy filtrate, which has in all cases to be returned to clarification and impose additional load on the evaporators, as well as the juice heaters and accessory equipment. It is the opinion of the author that the wonderful advantages originally offered by the use of continuous filtration of mud has, to a great extent, been lost due to the deterioration in the quality of cane. Not only has it been necessary to increase the square feet of filter area needed, but there has been a material increase in the total quantities of mud going to filtration, which results in returning an excessive amount of juice to reclarification, as previously stated. In order to lower the sucrose losses to filter muds there has been a steady increase in the amount of water used to wash the cake, which has been effective in some cases and very ineffective in others. However, it may be safely stated that the return of filtrate from continuous filters has been doubled in quantity since sugar-cane has deteriorated to its present condition at the time of milling. Many factories have attempted to relieve the condition of excessive volumes of muds occasioned by determination in the quality of cane by separate treatment of these muds including dilution, which in turn imposes further increase in the volume of filtrate that has to be returned to clarification, and in the estimation of the author the volume of these juices now approaches 15 to 20% of the total volume of raw juice being produced by the mills. In addition, the quantity of water

required for washing of the cake, together with the water required for dilution for after-settling of the thin muds produced from the clarifiers, has become of considerable magnitude.

In many factories this has resulted in the necessity of reducing the amount of water that can be applied as maceration on the mill tandem which has adversely affected extraction in all cases where this has been necessary due to the fact that the Evaporator Stations are no longer able to keep up with the mills.

The purity of normal juice (dilute juice purity being the same) is not an accurate index of the cane quality. For example, for the five year period from 1937 to 1941 inclusive, even though sugar-cane had at that time deteriorated in quality due to trashy cane and some mechanical harvesting, it had not deteriorated to its present state; the average normal purity for all of Louisiana during the above period was 77.4% and the boiling house efficiency averaged over all of the factories at 97.56%. In the subsequent five years; that is —from 1941 to 1946, the quality of sugar-cane depreciated materially, actually approaching the present quality of cane delivered to the sugar factories. The normal juice purity for the year 1946 averaged 77.6% or two-tenths of one per cent higher than the five year period cited previously. The boiling house efficiency, however, had deteriorated to 93.64 over all of the factories. This deterioration of 3.9 per cent drop in boiling house efficiency, which has not been improved since the year 1946, does not reflect upon the mill work at all but simply reflects on the fact that the factories receiving juice from deteriorated, poor quality cane, at the present time are unable to secure the same amount of sugar from the same amount of juice of the same apparent purity.

The inexorable fact is that juice from poor quality cane cannot be processed as efficiently, as rapidly or as cheaply as juice from good quality cane. This fact taken in consideration with lower sucrose extraction has resulted in reduction in yield per ton of cane to a point rapidly approaching a catastrophe.

The presence of trash in cane increases the fiber content, and in round figures for each one per cent increase in the fiber of cane there may be anticipated a drop of 2 per cent in normal extraction. Naturally, the varieties of cane have a great deal to do with the quality of cane, as well as the other factors that have been previously mentioned in this paper. Some varieties of cane in themselves are very difficult to handle in the fabrication process, as, for instance, the well known recalcitrant juice of POJ 2878. The effect of fiber on milling capacity is much more pronounced. An examination of numerous reports from various sugar producing countries shows that with an increase in fiber, mill capacities under the same conditions of mill setting and grooving, roll speeds and pressures, are affected approximately as follows:

Per cent fiber in cane	Relative milling capacity	Per cent decrease in milling capacity
10	100.1	----
11	90.9	9.1
12	83.3	16.7
13	76.9	23.1
14	71.4	28.6
15	66.7	33.3

In brief reference to the above table, the per cent of fiber in cane taken at 100% of milling capacity and 10% fiber is the basis on which the decrease in milling capacity is calculated in the tabulations. It sim-

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y goes to show that with the fiber ntent of 15%, for instance, the pacity will be 33.3% less than ould be the capacity of the same ill under identical physical condi- ons lower than it would be if the ber content of the cane was only %.

Some varieties of cane are known grind much easier than other va- eties on account of the character- ics of the fiber in the cane. In like manner, characteristics of ber in cane trash affect milling pacity and milling efficiency. It a practice at some countries to the cane knives high as 6 to 8" ove the bottom of the carrier to cilitate the crusher and mills get- g a firm grip on relatively long ber in the uncut cane to increase inding rates. In Louisiana the ashy cane is quite thoroughly dis- egrated by the action of knives, d in some instances shredders, ich tends to increase the gross ex- ction; however, this has a dele- ious effect upon the grinding e unless the mill openings and draulic pressures are adjusted so t the mills will accommodate to cane saws. It is problematical ether the necessary adjustments mill settings to maintain high erating rate entirely offset the ad- ntages of better preparation by remely fine knifing and shred- g. The factors offsetting the essity of excessive mill openings urally then become those where ceration plays the important part, the intermediate mills with pro- maceration can serve as "wring- rolls, and where compound ma- ation is employed sucrose ex- ction can be maintained, as far possible, and in direct relation to quality of the cane being milled. Poor quality of cane has resulted decrease in the fuel value of ba- se, as well as having decreased capacity of the steam boilers in Boiler Plant. It has reached the nt where the quality of the ba- gasse produced by the cane mills cannot be satisfactorily burned on grates, and this has necessitated the almost universal return to the horse- shoe furnaces originally used in the sugar industry some 70 years ago, and only modified in their present designs. The burning rate of these furnaces, in itself, varies directly in percentage with the amount of mud that is carried to the Boiler House together with the bagasse. During rainy periods, or immediately fol- lowing rainy periods, the mud con- tent of the bagasse is so high that the burning piles often glaze over with silica, which leads to ineffec- tive and inefficient burning. The result is that it is doubtful that any factory in Louisiana can burn the bagasse with the anticipated effi- ciency that prevailed before the advent of mechanically harvested cane. The fuel value of bagasse has been materially decreased, not only because of the necessity of using excessive quantities of air to main- tain rate of combustion, but due also to the increased moisture content and this has resulted in increases in auxiliary fuel consumption by many factories. Lack of steam pressure has caused mill stoppages in many instances, and has in other cases re- quired the installation of additional bagasse burning furnaces, together with steam boilers in order to main- tain the grinding rate of old.

There has been a number of pa- pers presented before this League bearing out the heavy financial losses that have resulted from the grinding of poor quality cane, but little has been accomplished in the way of assisting in reduction of

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STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946

Of The Sugar Bulletin, published semi-monthly at New Orleans, La., for October 1, 1949. State of Louisiana, Parish of Orleans.

Before me, a Notary Public in and for the State and parish aforesaid, personally appeared Marcel J. Voorhies, who, having been duly sworn according to law, deposes and says that he is the Editor of the Sugar Bulletin and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the acts of March 3, 1933, and July 2, 1946, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit.

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, The American Sugar Cane League of the U. S. A., Inc., New Orleans, La.; Editor, Marcel J. Voorhies, New Orleans, La.; Managing Editor, none; Business Manager, none.

2. That the owner is the American Sugar Cane League of the U. S. A., Inc., New Orleans, La.; J. J. Munson, Houma, La., President; L. A. Borne, Raceland, La., Vice President; R. H. Chadwick, Bayou Goula, La, La., Treasurer; J. J. Shaffer, Jr., Ellendale, La., Secretary.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are none.

MARCEL J. VOORHIES,
Editor.

Sworn to and subscribed before me this 10th day of September, 1949.

BRITTMAR P. LANDRY,
Notary Public.

(Seal)

(My commission expires at death.)

these losses. These losses are fa
too great for Louisiana factories t
bear and this is evidenced by th
fact that during the next grindir
season, according to authentic r
ports, approximately one-seventh
the existing factories in Louisian
will fail to operate. If nothing
done about the matter of improvir
the quality of cane it is reasonab
to suppose that other factories w
of necessity have to drop by th
wayside in subsequent years.

It is not the intention of this p
per to bring out a defeatist attitud
or to be iconoclastic in nature. Th
problem of delivery of reasonab
clean came as well as freshly a
properly cut cane to the factories
Louisiana is not insurmountable. (
a comparable basis the problem
Louisiana is by far more simp
than that which was faced by H
waii, where the cane is harvest
with bulldozers and much of t
cane is pulled up and comes to t
factory in complete stools, not on
having all of the roots, but al
containing an excessive amount
soil. This cane also contains a gre
deal of rock that is tied up wi
the cane in the masses that are d
livered to factories. The Hawaii
industry, even under these seeming
impossible conditions, could not n
be in existence had they not coope
ated together in developing means
prepare and to deliver to the mi
cane that had been freed of roc

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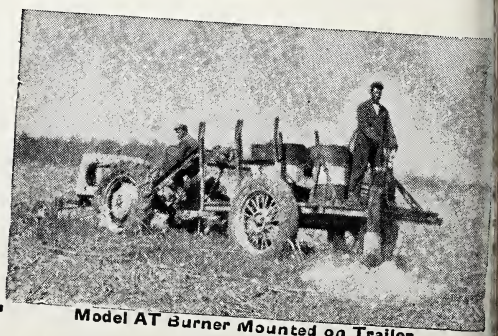
Model AT Burner Mounted on Trailer

rt and to a greater degree the ant trash. Another comparative sis, and that it is not impossible secure freshly harvested cane at e factories, is drawn on the fact at the sugar beets produced in lifornia where the temperature is cessively hot, and where beet pro- ction could only be carried out der irrigation are scheduled so at no beets reach the factory that ve been dug over a period of 24 urs. Scheduling of shipments in uisiana would not require as ompt delivery as 24 hours after ne has been cut, however, condi- ns now prevalent wherein cane in ny instances is cut for a week fore being sent to the factory st be overcome.

Many other industries have had ch more difficult problems of rvesting that have been overcome development of machines for per- rming much more complicated jobs n that required by separation of sh from sugar cane, which to- her with schedule of shipment s imposed the entire difficulties the sugar factories of Louisiana. e problem has probably not been ved in Louisiana because no one s been furnished sufficient incen- e to solve it.

There are not enough sugar fac- ies in Louisiana for any manu- turer of equipment to expend the essary monies to develop equip- nt for properly cleaning and shing of sugar cane at the fac- ies, and therefore, the job of rcoming this problem is inherit- by the sugar factories themselves. spite of the fact that the indus- appears to be reluctant to ance an engineering program of eloping the needed equipment to e the problem in Louisiana, it st be brought to the attention of factory owner that in effect are paying many hundreds of sands of dollars annually in re- ed sugar yields from fixed priced e, as well as excessive maintenance of their equipment by failing to concentrate their efforts, or to finance the engineering necessary to overcome the problem. It might reasonably be stated that the Louisiana sugar factories that will operate for the 1949 crop will lose several hundred thousands of dollars unnecessarily due to poor quality of cane. It should be reasonable to assume that these factories with appreciation of the fact that their very existence depends upon overcoming the problem of poor quality cane being delivered to the mills would foster and finance with sufficient money a program to develop proper cane cleaning equipment without delay.

Lethargy on the part of the factory owners in concentrating their efforts in this direction not only will result in continued losses of hundreds of thousands of dollars annually by the factories, but might well result in a serious collapse of the industry from factory operating angles.

THE MARKETS

(Continued from page 56)

strap Molasses has shown considerable strength during the past two weeks, advancing to 5⅞ cents a gallon in bulk f.o.b. Plantation. This is an increase of 7/8 of a cent a gallon since the start of the present marketing period. Quotable sales of blackstrap were recorded on October 27th at 5½ cents, on October 31st at 5⅝ cents, on November 3rd and 4th at 5¾ cents, and on November 10th at 5⅞ cents a gallon. If the advance continues above 6 cents a gallon the cane grower will begin to share in the proceeds.

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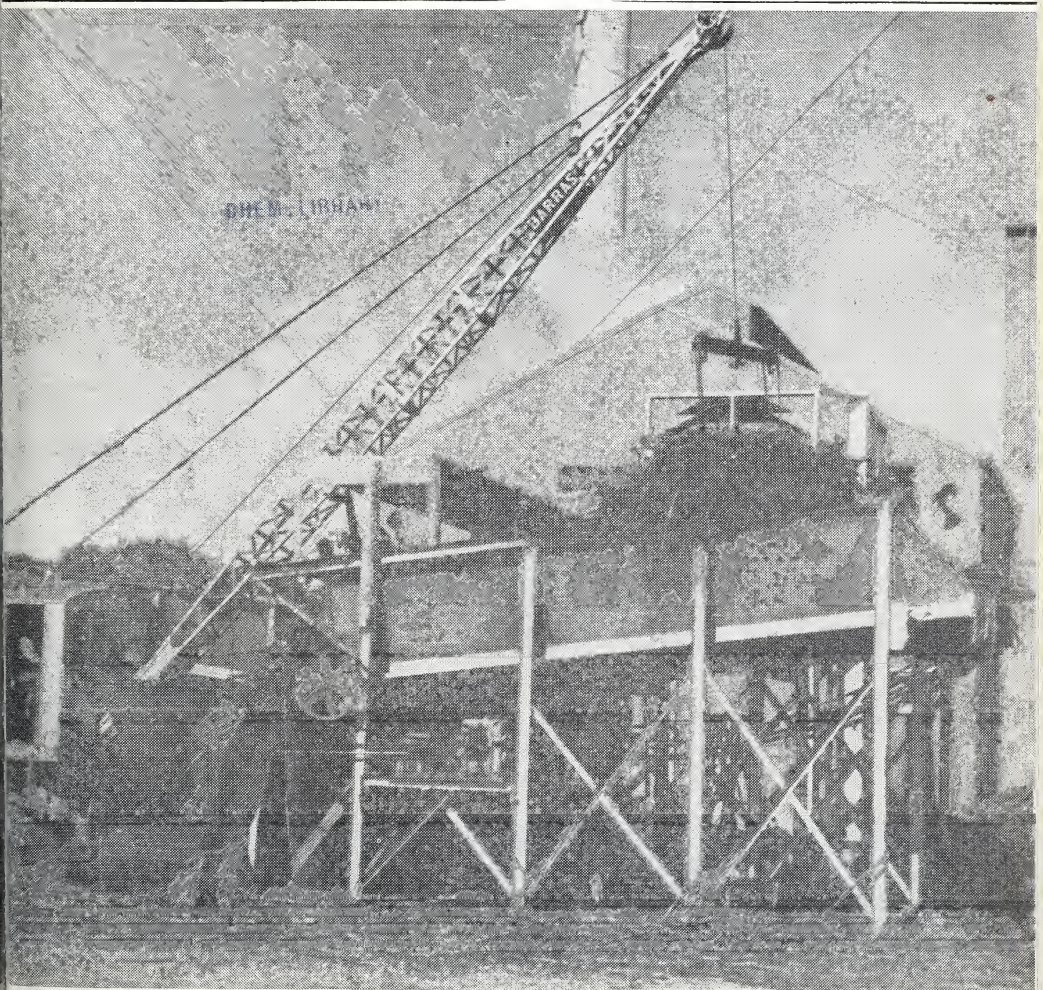

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THE
SUGAR BULLETIN

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FLOWERING OF SUGARCANE IN LOUISIANA

By Arceneaux, George, Agronomist, and Hebert, Leo P., Junior Agronomist, Division of Sugar Plant Investigations, Bureau of Plant Industry, United States Department of Agriculture.

Editor's note: The article printed below appeared in the June 1942 issue of THE SUGAR JOURNAL. Dr. George Arceneaux has suggested that it be re-printed at this time because of the timely information it contains about flowering sugarcane.

It is well recognized that varieties of sugarcane differ greatly among themselves with respect to the extent of flowering which normally occurs. For obvious reasons the tendency to flower is regarded as an undesirable varietal character under conditions of commercial culture ordinarily permitting the sugarcane crop to reach sexual maturity. Sugarcane varieties now cultivated in Louisiana seldom reach the flowering stage because of limiting climatic factors. During late fall and early winter of 1941, however, several of the released varieties, notably C.P. 29/103, C.P. 20/120 and C.P. 29/116, showed extensive "boenting" and in some cases a considerable percentage of the stalks produced fully developed flowers.

Results of studies to determine the extent of flowering which occurred in several of the important varieties and the related data incidentally obtained are considered of sufficient interest to warrant publication at this time.

At each of 3 dates during December 1941 and January 1942 comparable samples comprising 120 stalks each were taken from plant-cane and first-stubble of Co. 281, Co. 290, C.P. 28/19, C.P. 29/320, from plant-cane of C.P. 29/116 and from first stubble of C.P. 29/103 and C.P. 29/120. Each sample was divided into groups according to stage of flower development as follows:

A. No external evidence of tasse formation.
B. Early "boent" stage. (Incipi ent tasseling).
C. Advanced "boent" stage.
D. Early tasseling (1/3 or les of tassel showing).
E. Advanced tasseling (mor than 1/3 of tassel show ing).

It should be pointed out that th different stages as above defined ar purely arbitrary and merge fror one into the other. The placin of individual stalks of a sam ple into the respective group was therefore influenced somewha by the judgment of person involvec but it is believed that the results c such a grouping give a fairly goo picture of stage of inflorescence a tained by the particular populatio of stalks.

After having been classified a above indicated, the stalks wer stripped and topped as for mil ing purposes. Detailed results of ol servations on the different stall groups with first stubble are give in tables. The essential informatio supplied by these data may be sun marized as follows:

(1) Co 281 and Co 290 showe quite generally the least and C.I 29/120, C.P. 29/103 and C.P. 29 116 the most extensive flower deve opment.

(2) The first stalks of any give variety to flower were quite co sistently the heaviest ones.

(3) At incipient stages of flov er development the most advance stalks were on the whole the highe in sucrose content and juice purit In the advanced stages, however, illustrated by juice analyses of C. 29/116 and C.P. 29/103 made c

TABLE 1—Results of observations on sugarcane stalks of different varieties grouped according to flowering stage at each of three dates. Plant-cane series.

Variety	Stage of development with respect to flowering[1]	Distribution of stalks according to stage	Average weight per stalk	Juice Analyses: Brix	Sucrose	Purity	Indicated yield 96° sugar per ton of cane
		Samples taken December 11, 1941					
		%	Pounds		%		Pounds
o. 281	A	79.20	1.62	17.51	15.11	86.29	215.7
	B	20.80	1.88	17.63	15.31	86.84	219.2
o. 290	A	60.00	2.06	16.47	13.40	81.36	196.5
	B	40.00	2.50	17.05	14.15	82.99	209.8
. P. 28/19	A	47.50	1.38	20.05	17.70	88.28	245.3
	B	52.50	1.93	19.82	17.56	88.60	243.8
. P. 29/116	A	20.80	2.26	16.48	13.53	82.10	195.6
	B	12.50	2.50	16.42	13.42	81.73	193.6
	C	50.00	2.98	16.68	13.73	82.31	198.8
	D	16.70	3.75	16.99	14.20	83.58	207.3
. P. 29/320	A	40.80	1.89	18.70	16.17	86.47	226.4
	B	40.00	2.18	18.59	16.02	86.18	223.9
	C	19.20	2.57	18.72	16.12	86.11	225.2
		Samples taken December 23, 1941					
o. 281	A	62.50	1.35	18.11	15.68	86.58	224.2
	B	37.50	1.88	18.68	16.30	87.26	234.0
o. 290	A	57.50	2.00	17.20	14.02	81.51	205.8
	B	42.50	2.49	17.89	14.90	83.29	221.3
. P. 28/19	A	33.30	1.14	20.43	18.05	88.35	250.2
	B	49.20	1.61	20.65	18.33	88.77	254.7
	C	17.50	1.92	20.73	18.48	89.15	257.3
. P. 29/116	A	10.80	1.98	17.34	14.35	82.76	208.4
	B	13.30	2.52	17.07	14.15	82.89	205.7
	C	25.90	2.57	16.63	13.68	82.26	198.0
	D	25.00	2.94	17.36	14.43	83.12	210.1
	E	25.00	3.52	16.54	13.47	81.44	193.9
. P. 29/320	A	19.20	1.51	19.21	16.68	86.83	234.0
	B	35.80	1.69	19.28	16.90	87.66	238.2
	C	45.00	2.35	19.38	16.85	86.95	236.6
		Samples taken January 5, 1942					
o. 281	A	88.30	1.36	18.20	15.94	87.58	229.2
	B	10.00	1.75	18.57	16.25	87.51	233.6
	C	1.70	2.38	18.67	16.71	89.50	242.8
o. 290	A	78.70	1.95	17.88	14.92	83.45	221.8
	B	21.30	2.39	18.36	15.40	83.88	229.6
P. 28/19	A	91.20	1.50	20.80	18.54	89.13	258.1
	B	8.80	1.49	20.36	17.93	88.05	248.2
P. 29/116	A	40.00	2.21	16.84	13.92	82.66	202.0
	B	10.00	2.11	17.38	14.74	84.81	216.9
	C	20.00	2.53	17.18	14.28	83.12	207.9
	D	17.50	2.85	17.38	14.49	83.37	211.3
	E	12.50	2.99	16.79	13.80	82.19	199.7
P. 29/320	A	40.80	1.40	19.51	17.08	87.54	240.6
	B	14.10	1.86	19.56	17.11	87.47	241.0
	C	45.10	2.28	19.72	17.26	87.53	243.1

[1] A—No external evidence of tasseling.
B—Early boent stage.
C—Advanced boent stage.
D—Early tasseling (1/3 or less of tassel showing).
E—Advanced tasseling (more than 1/3 of tassel showing).

anuary 5, the stalks of the group howing completely exposed tassels ere lower in average sucrose con- nt and juice purity than stalks in ie earlier stages.

(4) While, within a variety in given situation, stalks showing the ighest sugar content and juice puri- , as a group, tended to flower first here was no association between ndency to flower and varietal level sucrose content. For instance .P. 29/116, one of the varieties showing the most extensive flowering, was the lowest in sucrose content of any in the group.

(5) No attempt was made to measure the effect of flowering on sugar accumulation. However, a study of the data indicates that, while flower development was accompanied by an appreciable drop in sucrose content and juice purity, the losses in sugar under conditions of the study were not seriously

(Continued on next page)

TABLE 2. Results of observations on sugarcane stalks of different varieties grouped according to flowerin stage at each of three dates. First-stubble series.

Variety	Stage of development with respect to flowering[1]	Distribution of stalks according to stage	Average weight per stalk	Juice Analyses			Indicated yield of 96° sugar per ton of cane
				Brix	Sucrose	Purity	
		Samples taken December 11, 1941					
		%	Pounds		%		Pounds
Co. 281	A	48.3	1.45	18.38	15.97	86.89	228.7
	B	50.0	1.77	18.19	15.91	87.47	228.6
	C	1.7	2.50	18.65	16.38	87.83	235.9
Co. 290	A	41.7	2.09	16.85	13.77	81.72	202.4
	B	58.3	2.69	17.15	14.26	83.15	211.6
C. P. 28/19	A	10.8	1.35	19.84	17.29	87.15	238.1
	B	40.0	1.82	20.49	18.18	88.73	252.6
	C	49.2	2.13	20.03	17.72	88.47	245.8
C. P. 29/103	A	14.2	1.79	16.49	13.63	82.66	194.0
	B	32.5	3.03	16.84	13.68	81.24	192.9
	C	53.3	2.98	16.73	13.54	80.93	190.5
C. P. 29/120	A	15.0	1.19	17.76	14.97	84.29	211.1
	B	17.5	2.52	17.94	15.21	84.78	215.1
	C	40.8	1.94	18.50	15.95	86.22	227.6
	D	26.7	2.53	18.30	15.69	85.74	223.2
C. P. 29/320	A	30.8	1.59	17.64	14.91	84.52	206.3
	B	26.7	2.06	17.93	15.48	86.34	216.6
	C	42.5	2.36	18.36	15.91	86.66	223.0
		Samples taken December 23, 1941					
Co. 281	A	58.3	1.40	18.30	15.92	86.99	228.2
	B	41.7	1.64	18.75	16.56	88.32	239.1
Co. 290	A	37.0	1.96	17.67	14.70	83.19	218.2
	B	37.0	2.45	17.86	14.93	83.59	222.2
	C	26.0	2.79	18.36	15.71	85.57	236.6
C. P. 28/19	A	47.5	1.40	20.24	17.84	88.14	247.0
	B	30.8	1.86	20.86	18.59	89.12	258.8
	C	21.7	2.31	20.83	18.65	89.53	260.2
C. P. 29/103	A	23.3	2.30	17.72	14.59	82.34	207.2
	B	24.2	2.81	18.03	15.05	83.47	215.4
	C	52.5	3.36	17.95	14.98	83.45	214.3
C. P. 29/120	A	15.0	1.26	18.20	15.51	85.22	220.0
	B	10.8	1.58	19.01	16.43	86.43	234.7
	C	35.8	1.94	19.24	16.88	87.73	242.9
	D	24.2	2.38	19.43	16.98	87.39	243.9
	E	14.2	2.62	19.05	16.42	86.19	234.2
C. P. 29/320	A	45.0	1.57	17.89	15.08	84.29	208.4
	B	22.5	2.01	18.74	16.14	88.13	225.5
	C	32.5	2.33	18.93	16.60	87.69	234.1
		Samples taken January 5, 1942					
Co. 281	A	58.8	1.27	18.26	15.99	87.57	229.9
	B	32.8	1.74	18.80	16.50	87.77	237.5
	C	7.6	1.96	19.29	17.34	89.89	252.5
	D	0.8	2.85	19.62	17.44	88.89	252.6
Co. 290	A	45.8	1.67	17.85	14.86	83.25	220.6
	B	39.2	2.55	18.67	16.02	85.81	241.7
	C	15.0	2.68	18.87	16.25	86.12	245.6
C. P. 28/19	A	62.5	1.36	20.85	18.42	88.35	255.4
	B	37.5	1.95	20.72	18.62	89.86	260.3
C. P. 29/103	A	29.2	2.16	17.64	14.62	82.88	208.4
	B	27.5	2.97	18.36	15.57	84.80	224.7
	C	35.8	2.96	18.38	15.43	83.95	221.5
	D	5.8	2.83	18.45	15.51	84.07	222.8
	E	1.7	3.32	17.78	14.49	81.50	204.7
C. P. 29/120	A	13.3	1.22	18.48	15.91	86.09	226.8
	B	10.0	1.93	19.22	16.94	88.14	244.3
	C	26.7	2.24	19.50	17.19	88.15	248.0
	D	28.3	2.37	19.58	17.36	88.66	251.1
	E	21.7	2.63	19.63	17.19	87.57	247.2
C. P. 29/320	A	71.8	1.75	17.93	14.94	83.32	205.2
	B	28.2	2.16	19.32	17.05	88.25	241.2

[1] A—No external evidence of tasseling.
B—Early boent stage.
C—Advanced boent stage.
D—Early tasseling (1/3 or less of tassel showing).
E—Advanced tasseling (more than 1/3 of tassel showing).

PRESENT DAY MILLING PRACTICES IN LOUISIANA

By E. C. Niestrath, Chief Engineer, Service Foundry, Inc. Presented at the Meeting of the Manufacturing Section, Houma, La., June 22, 1949

Not many years ago it was the enerally accepted idea that sugar ane had to be ground at a slow rate f speed in order to permit the juice drain from the rollers. This idea as been proven to be quite erroeous and we find today that mills e running at speeds heretofore unard of and grinding almost fanstic capacities of tough, high fiber ne. Whether the speeds and caacities now in vogue are the maxium attainable has yet to be proven experiment, but it does seem asonable to believe that there ists a limit beyond which it is ither practical nor economical to , as the cost of maintenance and pair might more than offset the nefits derived from the higher inding rate.

Although higher speeds have a eat influence on the grinding rate, is not to be taken for granted at merely increasing the speed of e tandem will bring about a dered increase in capacity, as many her factors such as the fiber connt and type of cane, the roll setngs and grooving, the preparation the cane, and the careful co-ordiion of all the units in the tandem om the cane knives to the last ill, also affect capacity.

Many of these factors are more less intangible and cannot be dehitely defined or pointed out. The determination and selection of the proper size and type of roll grooving for a given capacity, for example, is something for which there exists no workable formula or rule, experience being the only basis of determination so far developed. Hence, there existed at one time, quite a wide variation in the grooving employed by different mills. Through closer cooperation and more widespread exchange of ideas between operators this difference has been narrowed down so that at present the most common or widely used mill roll grooves are 1″ on the front mills and 3/4″, 5/8″, and 1/2″ on the back mills. A few mills use 1-1/2″ and 2″ pitch grooves for the first mill, but where the cane is properly prepared by knifing and by adequate crusher work 1″ pitch should be sufficiently large for this purpose. Where poor crusher work (or no crusher) is available, larger pitches are essential as in such cases the first mill must perform the duty of the crusher as well as the first mill. These larger pitches would also be indicated where the amount of cane to be ground is extremely high and where large and sturdy front mills are available. One-inch pitch grooving could also be used to advantage on the second mills, with the balance of the mills

(Continued on page 74)

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ge. It should be pointed out furer that, since C.P. 29/103, C.P. /116 and C.P. 29/120 have been own, including in experimental ts, in Louisiana for a period of 10 ars and had not previously disayed any unusual tendency to wer, there would appear to be no ason to attach any great imporce to manifestations in this regard during 1941. It is likely that the observed premature flowering resulted from some unusual aspect of the prevailing weather—possibly the abnormally high temperatures experienced during the month of October.

[1] The authors are indebted to L. G. Davidson for making all chemical analyses.

CROP NEWS BY PARISHES

from

COUNTY AGENTS

Very fine grinding weather has prevailed throughout the month of November and we have asked the County Agents to give us some information on the progress made and how the canes are testing at this time. This issue of THE SUGAR BULLETIN has gone to press a little late so that we may bring you these reports.

St. John Parish. V. O. Calandro, County Agent of St. John Parish, dated his report November 28th and stated that on that day about 50% of the cane crop in his district had been milled. The canes have been averaging about 20 tons to the acre which is about the same as last season. The average sugar production per ton to November 28th was 155 pounds but Mr. Calandro states that the canes now are producing about 162 pounds of sugar per ton of cane. Sucrose is averaging about 12% and purity about 77%. The trash situation has been very satisfactory, averaging three to four per cent on most farms.

Iberia Parish. W. E. Williams, County Agent of Iberia Parish, also dated his report November 28th and also reported that the crop in his district was about 50% completed on that date. This season the canes are producing from 16 to 18 tons to the acre which is about the same as last year when the average was 17.9 tons to the acre. The cane has averaged about 161 pounds to the ton to December 28th and are now producing about 165 pounds to the ton. The Sucrose is running from 12½ to 13 per cent and the purity about 76.50%. Mr. Williams states that reports from farmers all over his section indicate that lower yields than were anticipated are developing and that most of the farmers thi that heavy borer infestation is r ducing yields from 2 to 4 tons p acre below early season estimates.

Assumption Parish. The grin ing season in Assumption Pari was about 65% completed November 29th according to our r port from E. J. Lousteau, Coun Agent, with the canes running abo 21.5 tons to the acre. The tonna production last year averaged 2(tons to the acre. The average sug production per ton from the sta of the campaign to November 29 has been 160 pounds but the sug production is now running abo 172 pounds to the ton with sucro 12.75 and purity 77%.

Lafourche Parish. Ideal d weather is making the burning cane easier and reducing trash to low percentage in Lafourche Pari according to the report from C. Arceneaux, County Agent, dat November 29th. Seventy per ce of the cane in his district had ready been milled on the date of l report and the average sugar p duction per ton of cane had be 158 pounds. Mr. Arceneaux stat however, that on the date of report the canes were only prod ing about 150 pounds of sugar p ton of cane. The sucrose is runni about 12.5% and purity abo 76.50%.

West Baton Rouge Parish. December 29th A. E. Camus, Coun Agent, reported that about 58% the cane crop in his district h been milled and that the canes h averaged about 23 tons to the ac Mr. Camus states "It was first es mated that the tonnage would as great or surpass the 1948 c

(Continued on page 74)

DOCTOR SARTORIS DIES

George Bartholomew Sartoris, Principal Agronomist of the Division of Sugar Plant Investigations in the Department of Agriculture, died from a heart attack at his home in University Parks, Maryland, on November 19, 1949.

Dr. Sartoris was one of the many benefactors of the Louisiana Sugar Industry who has won international repute as a breeder of sugarcane varieties which showed improvement in disease resistance and in productivity.

Born October 20, 1896 at Marshfield, Oregon, he graduated at Washington University as a Master of Science in 1921. He received his Doctor of Philosophy at the University of Michigan in 1923. He served in the U. S. Army Sanitary Corps during World War I.

He was employed in the Bureau of Plant Industry in 1923 and was assigned breeding of improved varieties of sugarcane in 1934, later enlarged, in 1941, to include the breeding of sugar sorghum. Many varieties now being used in Louisiana and Florida were improved under him at Canal Point, Fla., where he was in charge of the Sugar Plant Field Station.

We acknowledge gratefully the greatly helpful work of Dr. Sartoris and we extend our heartfelt sympathies to his widow and two daughters.

CHARGES AGAINST 1949 SUGAR QUOTAS THRU OCT. 31, 1949

The U. S. Department of Agriculture on November 7th issued its monthly report on the status of the 1949 sugar quotas for the various sugar-producing areas supplying the United States market.

The report shows that the quantity of sugar charged against the quotas for all offshore areas, during January-October, amounted to 4,974,308 short tons, raw value, as compared with 4,523,527 tons charged against such quotas through October 31 of last year.

The report includes sugar from all offshore areas recorded as entered or certified before November 1, 1949 for entry. The figures are subject to change after final outturn weights and polarization data for all entries are available.

These were 182,157 short tons of sugar, raw value, charged against the adjusted quota of 548,773 tons for the mainland cane area, and 1,150,495 short tons, raw value, against the adjusted quota of 1,500,000 tons for the continental sugar beet area, during January-September 1949, as compared with 164,415 tons and 1,311,910 tons, respectively, charged during the same period of 1948. Data for October are not yet available.

Through October 31 there had been entered or certified for entry against the liquid sugar quota for Cuba, 7,365,240 gallons and against the quota for Dominican Republic, none.

The quantities charged against the quotas for the offshore areas through October and the balances remaining are as follows:

Area		1949 Adjusted quota	Quantity charged against quota	Balance remaining
		(short tons, raw value)		
Hawaii	1,052,000			
Less amount reallotted	400,000	652,000	410,973	241,027
Puerto Rico		1,091,401	1,039,859[1]	51,542
Virgin Islands		6,000	4,363	1,637
Cuba		3,092,976	2,947,899[1]	145,077
Philippines	982,000			
Less amount reallotted	425,000	557,000	519,864	37,136
Foreign countries other than Cuba and the Philippines		51,850	51,350	500
Total offshore		5,451,227	4,974,308	476,919

[1] Includes sugar certified for arrival after October 31, 1949; Puerto Rico, 4,356 tons; Cuba, 41,638 tons.

Direct-Consumption Sugar

Direct-consumption sugar is included in the above quotas and the quantities charged against the various quotas.

Area	1949 Quota	Quantity charged against quota: Sugar polarizing 99.8 degrees and above	Quantity charged against quota: Sugar polarizing less than 99.8 degrees	Total charge	Balance remaining
	(short tons, raw value)				
Hawaii	29,616	1,697	5,114	6,811	22,805
Puerto Rico	126,033	117,931	6,415	124,346	1,687
Cuba	375,000	315,421	33,063	348,484	26,516
Philippines	59,920	------	251	251	59,669
Total	590,569	435,049	44,843	479,892	110,677

FULL DUTY COUNTRIES

Area	1949 Adjusted Quota[1]	Quantity charged against quota[2]	Balance remaining
	(pounds, raw value)		
China and Hongkong	18,900	37,560	—18,660
Dominican Republic	24,706,247	24,618,102	88,145
Haiti	2,744,668	2,744,668	0
Mexico	19,052,606	19,052,606	0
Nicaragua	10,488,180	10,488,180	0
Peru	43,177,018	43,177,018	0
Salvador	2,134,202	2,134,202	0
United Kingdom	374,936	430,394	—55,458
Other countries	3,243	4,202	—959
Unallotted reserve	1,000,000	13,004	986,996
Total	103,700,000	102,699,936	1,000,064
Tons	51,850	51,350	500

[1] Basic quotas against which no charges had been made as of September 1 are as follows (in pounds): Belgium 361,221; Canada, 692,481; Czechoslovakia, 323,166; Dutch East Indies, 259,444; Guatemala, 411,044; Honduras, 4,212,987; Netherlands, 267,398; and Venezuela, 355,936. Basic quotas which had been only partially filled were as follows: China and Hongkong, 353,619; Nicaragua, 12,544,822; Salvador, 10,074,812; United Kingdom, 430,394; and other countries, 52,685. Although the unfilled portions of these quotas have been reallotted to countries which had filled their basic quotas by September 1, under Sec. 204(c) of the Act each country retains its basic quota.

[2] In accordance with Sec. 212 of the Sugar Act of 1948, the first ten short tons of sugar, raw value, imported from any foreign country other than Cuba and the Republic of the Philippines have not been charged against the quota for that country. Under this provision 5,190 pounds have been entered or certified before November 1, 1949, for entry from Canada.

LIQUID SUGAR

Area	Quota	Quantity charged against quota	Balance
	(In terms of wine gallons of 72% total sugar content)		
Cuba	7,970,558	7,365,240	605,318
Dominican republic	830,894	0	830,894

EMPLOYMENT WANTED

Man with 35 years experience in all branches of sugar manufacturing and refining wants position in a refinery or raw sugar factory in Louisiana or Cuba or elsewhere. Reply A. J. Varnan, c/o C. Varnan, 1521 St. Roch Ave., New Orleans, La.

CROP NEWS

(Continued from page 72)

but, due to the low sucrose and purity the canes had to be topped lower and it is estimated between 10% and 15% will be left in the fields because of this fact and the heavy late borer infestation. This damage is so great that the growers of the Parish are planning to do systematic dusting throughout the Parish. The sucrose is running about 11.7% and the purity about 75%. Purity has been very erratic and most of the mills are getting around 76% while one of the mills is still down to 73%. The sucrose is also very erratic.

MILLING PRACTICES

(Continued from page 71)

5/8" or 1/2" pitch, provided there are four or more mills in the tandem. It would also be practical to use 1" pitch grooving on the first mill only, with the balance of the mills grooved 1/2", 5/8", or 3/4" pitch. The determining factor in either case would be the interchangeability of the rolls from one mill to another and the amount of spares to be used. In factories where all of the mills in the tandem are of the same size and have the same journals, interchangeability and spares offer no problem, but there are not very many mills in Louisiana which have such equipment hence it is necessary to select grooving with an eye to economy of spares.

The angle of the grooves should be either 50° or 55°, the fifty-degree angle being preferable and the most commonly used. A few mills are using, or have tried using, 40° and 45° grooves, but these, while entirely satisfactory on softer, cleaner canes such as are ground in the tropics, are entirely too pointed for practical economy when grinding hard, high fiber, trashy, and dirty

nes such as are being ground in uisiana, and result in excessive ll wear and tooth breakage. The ° groove is preferable because it fairly deep and yet not too point- for severe service, nor too blunt. Longitudinal hook or feed grooves the cane and bagasse rolls as ell as the top rolls are most essen- al, and recent experiments have inted out that they have a tre- endous influence on capacity. In- cations are that these hooks can very closely spaced, the finer the tch the greater the efficiency up certain limits, the limits being e wear and breakage on the ex- emely small hooks together with e increased cost of maintenance.

To facilitate the flow of juice om the rollers, Messchaert juice ooves should be used in the cane lls of all mills. They should also advantageous in the bagasse rolls the front mills of the tandem, and e in fact used quite extensively this manner in Cuba, but when employed, greatly increase the nount of trash in the amount of ash in the juice pans. Most opera- rs object to them because of this rt and trash, but when adequate eans are provided for removing is dirt they can be very beneficial, they provide excellent means for aining the juice from the bagasse ll. The most efficient and practi- l spacing for these grooves is 3″ tch, as smaller pitches decrease e drainage surfaces.

Grooves or teeth on the heels of rnplates, extending part way into e grooving of the bagasse rolls, eatly reduce the amount of falling ash on mills using coarse grooving, t care must be exercised not to ake the opening between the heel the turnplate and the bagasse ll too small and thereby restrict e flow of juice. It is a good rule make this opening 1/2″ on all ills, and to make use of grooves on e turnplate heels to reduce the nount of falling dirt.

In determining roll settings it must be remembered that there exists a rather definite relationship between the opening of the cane roll and the bagasse roll. The ratio of these openings should be about 1.75 to one for the first mill, increasing to about 2 or 2.25 to one for the last mill. In other words, for the first mill, the area of the opening for cane roll should be 1.75 times the opening for the bagasse roll, and on the last mill, the cane roll opening, should be about twice that of the bagasse roll opening, but in all cases the size of these openings should be governed by the opening of the cane roll. Many mill operators are inclined to set the bagasse rolls too close with the result that the mills are thrown out of balance when the mat of cane passes through the rolls.

A matter of extreme importance and one which is generally overlooked is that the roll and turnplate settings must be maintained by frequent adjustment and inspection as mill work progresses. Immediately a mill starts operating there commences an action which tends to destroy the original setting and it is only by frequent adjustment that these settings can be held.

Quite a few mills are of a type in which the turnbeam, or turnplate supporting bar, projects through an opening in the housing, the adjustments being made by wedges and shims. Most of these housings were designed many years ago and were intended for grinding much smaller capacities than they are now being called upon to handle. They are usually quite troublesome to the operating engineer because of the difficulty in keeping the turnplate in proper adjustment. In the case of these old style housings, this adjustment usually consists of moving the turnplate forward, thereby changing the relationship between the heel of the turnplate and the

top and bagasse rolls, thus throwing the mill out of balance. In the case of the rocker type turnplate, such as on the kingboltless type mills and on some of the new kingbolt type mills, this adjustment consists of a rocking or tipping action, permitting the turnplate to be tipped until the nose again comes in contact with the front roller, without greatly changing the relationship between the heel and the top and bagasse rolls. In a number of instances the wedge adjusted turn beams have been replaced by the rocker type through the use of attachments fastened to the existing housings.

The protection of the shaft journals of the mill bottom rolls has always been a problem, and many of these journals show effect of contamination of the lubricating oil caused by juice squirting from, or draining off, the ends of the rolls. In an effort to overcome this difficulty, splash plates, or, what are sometimes called juice flanges, or juice guards, were developed. These consist of thin plates, about 3/16" or 1/4" thick, approximately the same diameter as the bottom roll, mounted on the ends of the rolls so that they overlap the flanges of the top roll. By overlapping the flanges they form a shield and keep the juice from squirting on the journals.

Proper preparation of the cane for the mills is important to capacity and extraction. The initial step of this preparation actually takes place in the field, but, upon reaching the mill the preparation consists of washing (if any) proper knifing and proper disintegration by crushers or shredders. A good two roller crusher should extract no less than 60 to 65 percent of the normal juice in the cane, at the same time disintegrating the fiber so that it will readily enter the first mill. Such crusher for the purpose of good operation and proper functioning should be of larger diameter, or at least as large as the first mill rol and should run at a slightly fast surface speed in order to compe sate for the loss of volume due the discharge of the juice. Ma crushers now operating in Louisia were converted from the Krajews type to the V-groove type in ord to secure the benefits of the i creased extraction obtainable wi the V-groove type, but this conve sion has of necessity limited the si of the rollers so that these crushe are generally smaller than the mi and result in more or less troub with feeding, especially when grin ing the short fiber canes. As is t case with the mill rollers there is formula or rule for determining t size and angle of crusher roll groo ing, but experience in the past fe years has indicated that an abun ance of hook or chevron groov is an asset. In many instances t feeding qualities of old rolls ha been improved by adding small hook grooves between the lar hooks originally cut in the rolls.

Different devices have been ma in an effort to overcome the diffic ties encountered with feeding crus ers. Many years ago, the U. S. Pa ent Office granted patents for a r ciprocating type pusher feeder o erated from pistons, or from a mu tiple crankshaft. Various types feeder rolls have been tried, and r cently one operator in Louisia installed in the bottom of his crus er chute, an apron type feed similar to an intermediate carri apron. All of these have operat with more or less success, dependi upon the type and size of crush the location and angle of the ca chute, the height of the cane carri head shaft and the type of cane, of which are factors in influenci and affecting crusher feeding qua ties. Generally speaking, when t crusher rolls are large enough, a properly grooved, the cane chute placed at the proper angle a height from the bottom roll, t

eding of crushers should not be problem, but all crushers, whether nall or large, have more trouble handling the short fiber cane than ey do with the long fiber cane.

Proper knifing is an asset in ndling the present day high fiber ne and where possible a double t of knives is recommended. Those ives should be kept sharp at all nes by frequent sharpening or re-wal of the blades, and should be iven by prime movers sufficiently werful to drive them thru peak ads or chokes which might be used by uneven feeding at the eder table. Obviously, there is thing that will hamper capacity ore than constantly having to stop e mill to relieve chokes at the ne knives.

Most mills are now equipped with draulic top caps, thus providing r a greater or less degree of free ating of the top roll which is so sential to good mill work. Since ny of these top caps have been apted to old mills and are being ed in conjunction with the existing ort, squatty top roll top boxes, e degree of free floating is ques-nable as these short top boxes ve a tendency to bind or jam ainst the sides of the housing ws. When such binding occurs, ormous pressures are exerted be-re the top roll begins to lift, and some cases no lifting whatever curs. Increasing the height of the boxes and lengthening their les, so as to reduce this binding, s proven to be an important step vard insuring free floating of the roll.

The development of the air loaded draulic accumulators has been an portant improvement and has ne much to bring about better llwork. There are now several es of these accumulators being de, and either type is readily aptable to existing equipment. ey are extremely flexible and per-t changes in the hydraulic load-ing at will. They react instantly when the top roll commences to raise, and exert a practically constant predetermined pressure at all times. The old style weight loaded accumulators which were in use before the development of the air loaded accumulators, and are still in use in many factories are far more sluggish in their reaction due to the inertia of the weights, and are in addition far more difficult to adjust, or alter, for desired changes in top roll pressure.

Available information indicates that practically all of the mills in Louisiana are operating their crushers under higher hydraulic pressures and their mills under lower pressure than usually recommended and used for units of similar size and capacity. Crushers should be operated under pressures of 30 to 40 tons per lineal foot of roll length; mills seven feet long, should be loaded from 70 to 80 tons per foot; five and six foot mills should have pressures of 60 to 70 tons; and four foot mills approximately 50 tons per foot. These are recommended pressures which can be varied to suit individual conditions, but which should result in good mill work provided the top rolls are free to float and the hydraulics are in good working order.

The removal of trash and dirt from the juice pans beneath the mills, in most cases, requires considerable labor. This labor could be eliminated by using juice pans having steep sloping sides, but these pans have the disadvantage of being very deep, making it necessary to place the juice strainer far below the level of the mill floor and not many mills are situated so that this can be done. The result is that most of them have to be content with shallow pans which afford poor means of removing the trash. As most of them are of concrete, this condition is aggravated as the concrete tends to roughen, due to the

chemical reaction of the juice.

The substitution of steel plate pans for the concrete ones now used would be of much help in obtaining proper drainage, but because of the shallow depth of most pans, this alone would not be sufficient to insure the removal of the trash, and other means must be employed for this purpose. To accomplish this, one operator, this year, is installing steel pans equipped with drag conveyors, similar to those used in Ewart type intermediate carriers. This arrangement should be very satisfactory and should eliminate the labor at this station, although some difficulty may be experienced in the maintenance of the equipment. A simpler and cheaper arrangement would be the installation of spray or sluice pipes at the sides of the juice pans arranged so that the sprays would keep the pans clean by flushing them with juice. This juice could be taken from the juice tank under the juice strainer by means of the raw juice pump if of sufficient capacity, or by means of another pump or preferably a steam siphon installed for that purpose.

The higher speeds and grinding rates have naturally imposed increased loads and strains on existing equipment and have brought a demand for improved gearing. In most cases this improvement has been accomplished by replacing the old cast tooth gears with gears having machine cut teeth and by substituting cast steel bedplates and larger pillow blocks, for the old cast iron equipment. Mills which have not already converted their old gearing, but which anticipate increasing their speed and capacity, should by all means consider the adoption of cut tooth gears, at least for the intermediate, if not for all gears. Experience has proven their superiority under intensive operation, and their freedom from vibration at high speeds.

The development and installation of the turbine drive for sugar mi which was for so many years co sidered an impossibility, has open another phase in the developme of the sugar industry. It forms economical means of replacing o worn out engines, or engines ha ing insufficient power and from t results shown by the initial install tion, it is reasonable to assume th this type of drive will be universal adopted, especially for new install tions.

The development of mechanic harvesting, which in itself has be greatly responsible for the surviv of the industry, has brought with many problems seriously affecti the processor. These problems ha been discussed on previous occasio but since there exists a doubt to whether their magnitude and i portance and effect on the econor of the industry are understood all, it might be well to consid them further.

Greatest and most important these problems are those of tra and old cane, and their influen on capacity, maintenance, clarific tion, recovery, and over-all econon Their effect on capacity and eco my probably can best be illustrat by assuming, for the sake of exa ple, a mill having a daily grindi capacity of 1000 tons of 14% fib cane, containing 20% trash. Th would then result in 200 tons trash having approximately 90 fiber, and 800 tons of cane havi 14% fiber, or 180 tons of dry fib in the trash and 112 tons dry fib in the cane, making a total of 2 tons dry fiber to be handled by t mill, instead of 140 tons as would the case if no trash were present.

Noel Deerr has previously demo strated that fiber is practically i compressable beyond a certain poi and consequently is the determini factor for milling capacity (this w recently discussed by Mr. Th Lowe in his paper presented to t American Society of Sugar Techno

ists on May 22, 1946). Thus the 92 tons of fiber which has to be andled by the mill instead of 140 ons, as would be the case if no rash were present in the cane, is quivalent to 2086 tons of cane at 4% fiber. In other words the mill, hile grinding only 1000 tons of ane per day, is actually grinding he fiber equivalent of 2086 tons of lean cane containing 14% fiber.

The 180 tons of dry fiber in the rash contains no sucrose as it enters the mill but absorbs sucrose uring the milling process, so that hen it leaves the mill as bagasse, contains the same amount of sucrose as the bagasse. Considering % as an average for the amount f sucrose in the bagasse, the 180 ons of fiber absorb 5.4 tons or 0,800 pounds of sucrose which, at narket value of four cents per ound, amounts to $432.00 per day r $30,240.00 for a seventy day crop, hich is burned under the boilers or old as bagasse.

In the past few years there has eveloped a rather widespread practice of cutting the cane far in advance of its delivery to the mill, the esult being that mills are called pon to grind cane which has been ut from ten days to three weeks, nd which is on the point of inversion when received. This practice ogether with the practice of high opping and the consequent low purities results in poor clarification and oor recovery and is of such far eaching significance that it vitally ffects the economic survival of the ndustry.

It is not within the scope of this aper to fully discuss these problems and their solution, which to say he least, is extremely difficult. They re here mentioned because of their rofound effect on the industry. hey are of sufficient magnitude, n the writers opinion, to command he attention of the grower as well s the processor, in an effort to roduce satisfactory results.

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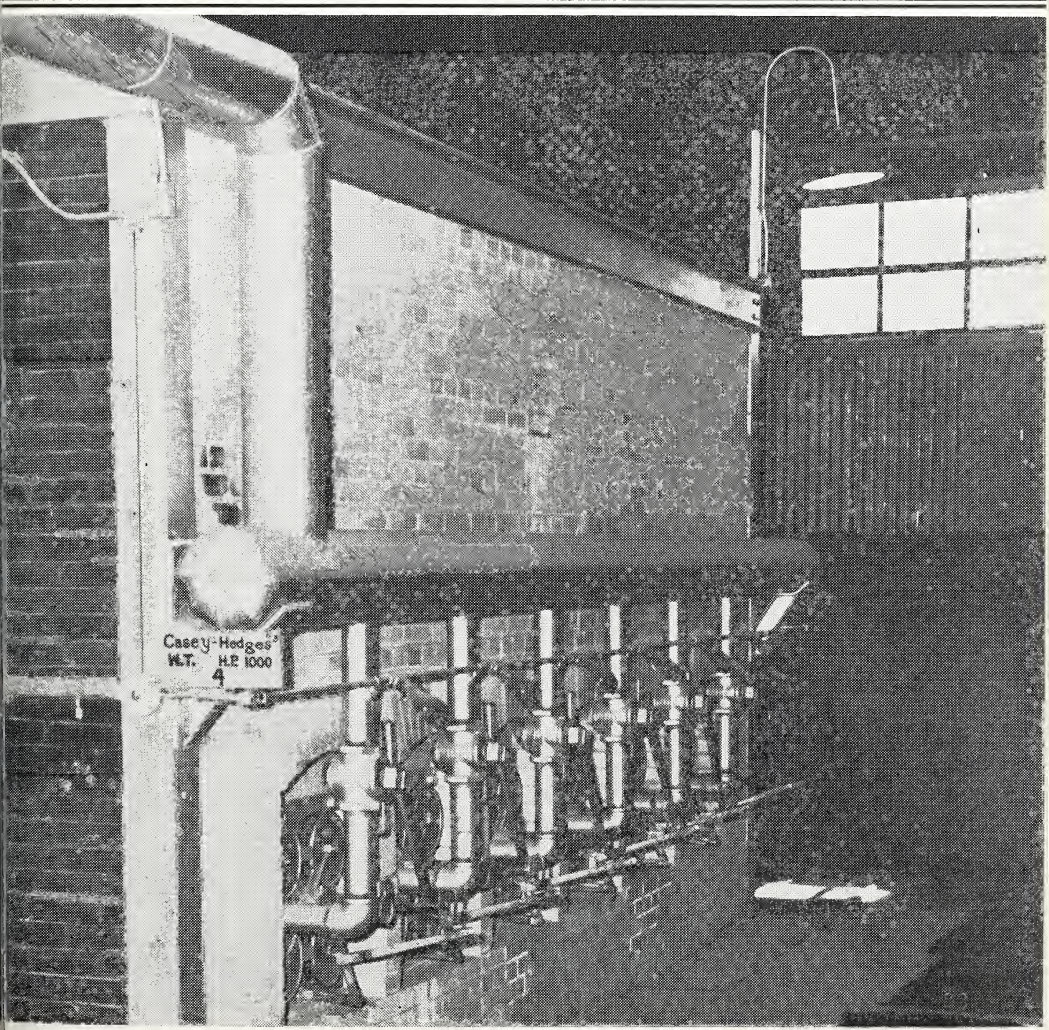

Modern Boiler Installation in Louisiana Sugar Mill

THE
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IN WASHINGTON WITH C. J. BOURG

Statement By Mr. Bourg Relative To 1950 Sugar Requirements

Statement of Clarence J. Bourg
Vice President and Attorney
for the
American Sugar Cane League of New Orleans, Louisiana
In Connection with Public Hearings Called by the Secretary of Agriculture for November 30, 1949 Relative to the 1950 Continental U. S. Sugar Requirements

O THE DIRECTOR
UGAR BRANCH
RODUCTION AND MARKETING
ADMINISTRATION
.S. DEPARTMENT OF AGRICULTURE
/ASHINGTON, D. C.

My name is Clarence J. Bourg and appear representing the American ugar Cane League of New Orleans, ouisiana, which has as members all f the 11,000 sugarcane growers and iembers and the 57 sugarcane proessors in Louisiana. The American ugar Cane League desires at the utset to compliment the Secretary f Agriculture and his advisers on ie action which they took with reard to the determination of the conumption estimate for 1949. The iarket was restored. in some measre, as it rightfully should have een under the Sugar Act. Admitted-, the figure was comparatively w. 7,250,000 short tons, raw value, as a reasonable estimate of an unertainty. It had the effect of rengthening the sugar market, hich definitely needed strengthenig. And yet, it did not deprive a ngle consumer in the United States f obtaining all of the sugar he needed at a reasonable price. Neither did it deprive any refiner of obtaining an adequate supply of raw sugar at what we have considered a very low price. Thus the refiners were, at all times and in all parts of the country, able to supply white sugar for direct consumption to the wholesale and retail establishments of our country.

Resistance To Secretary

But in so carrying out the obvious mandate of the Sugar Act, the Secretary has met with strong resistance from these Seaboard refiners who were seeking to obtain their raw material at the very cheapest price regardless of the effect upon the domestic sugar producers, as a whole. These refiners were able to nullify substantially this constructive action of the Secretary, who has persisted in his wise and statesmanlike determination to carry out the "intent of Congress" as expressed in Section 201 of the Sugar Act. Their anxiety to prevent the raw sugar price from being brought back to the 6.32¢ price, which existed for raw sugar under the O.P.A. in 1947, caused the refiners to indulge in

some very unusual activities which some considered to be selfish and unmindful of the rights of our producers and processors in Louisiana.

Maintain the Domestic Industry

We are not asking for anything more than a judicious application of the rule of "live and let live". Our costs have increased greatly since 1947, and a majority of these same refiners agreed to and supported the inclusion in the Sugar Act of a provision whereby Congress directed the Secretary of Agriculture to maintain the domestic sugar industry in a relationship with the 8.40¢ price for refined sugar and 6.32¢ for raw sugar, which existed under O.P.A. in 1947, plus a relationship with the increased cost of living since 1947 as indicated by the Consumers' Price Index, published by the Department of Labor. We sincerely and simply ask that the price of raw sugar may be maintained at the level contemplated by the Act of Congress itself. After more than 100 years of more valleys than peaks, we hope to look forward to a profitable and progressive existence, in our own small way.

Sugar Cheap by Any Standard of Comparison

Sugar is relatively cheap by any standard. It is one of the very few commodities about which housewives have been satisfied. It is largely by comparison with other foods that make up the daily shopping list of housewives that the price of sugar becomes most significant. The inclination has been mostly to compare sugar prices with those of other staple foods, let us say from 1935 pre-war and the present day. We are more enclined to make a striking comparison between the price o a dozen of such foods and the pric of sugar, as these prices may hav been current in 1900 in contras with what they are today.

There is something quite though provoking in the small percentage o increase for sugar (54%) as com pared to other items for which th housewife shops from day to day. I will be noted that steak represent a 585% increase from 1900 an pork chops only a little less a 548%. Even potatoes are 300% greater, while eggs increased 249% and butter 232%. These figures ap pear to us to be overwhelming an to expose to ridicule any attemp to say that the price of sugar is 'to high'. The latest Consumers' Pric Index as of October, 15, 1949 i 168.5, but sugar at 8.05¢ wholesal refined, is well below the inde price, which should be 8.83¢ for r fined, at wholesale. Raw sugar a cordingly should be somewhere little above 6.32c.

Propaganda Exposed

A recent hand-out of propagand from the American Bottlers of Ca bonated Beverages contained s many exaggerations and mis-stat ments of fact that it hardly seem worthy of denial, except to the ex tent that the average consumer ma not have the correct information an would probably be inclined to d pend upon the integrity of the trad association under whose name th pamphlet entitled "What's In Ou Sugar Bag?" was issued. Selecte statements from the pamphlet an the answers thereto are printed b low.

1. " . . . the 1937 Act instructe the Secretary of Agriculture, in se

Year	Steak Lb.	Pork Chops Lb.	Corn Meal Lb.	Bacon Lb.	Chicken Lb.	Ham Lb.	Potatoes Lb.	Eggs Doz.	Butter Lb.	Milk Qts.	Lard Lb.	Flour Lb.	Sugar Lb.
1900	13.2	11.9	1.9	14.3	13.4	16.3	1.4	20.7	26.1	6.8	9.9	2.5	6.
1948	90.5	77.2	10.8	76.9	61.3	68.0	5.6	72.3	86.7	21.8	29.6	4.9	9.
% of Increase	585	548	468	437	357	317	300	249	232	220	200	100	54

ing his consumption forecast at the eginning of each calendar year, to ase it on the known per capita con- umption; whereas the 1948 Act . . . eaves the Secretary of Agriculture uite free to set an estimate which ould be more fictitious than realis- ic."

This provision of the Act was hanged because it was realized that he old requirement could result in n estimate which would be "more ictitious than realistic" to use the ottlers' own words with a different pplication. Under present- day con- itions of significant and rapid hanges in the level of national in- ome and in food consumption hab- ts, the distribution level for a given ood product in one year is not a eliable guide for estimating the fol- owing year's consumption. This is articularly true in the case of ugar because of the large changes n stock levels which accompany hanges in the price or the price out- ook, the outlook for strikes or other abor difficulties, or other emergen- ies. The Congress apparently felt hat a more realistic estimate would esult from the removal of this re- triction and that the Secretary of griculture could be expected to ake a realistic estimate which ould be fair both to consumers and roducers. Based upon past admin- tration of the Act, there is abso- utely no basis for the bottlers' as- ersion reflected in their statement, including a pious admonition to ecognize the consumer's welfare."

2. "At this writing (August 31, 949) that obvious under-estimation f 1949 consumption requirements ill controls the volume of sugar vailable to the American public."

This and other similar statements roughout the pamphlet tend to nvey an impression that the Sec- etary of Agriculture is deliberately ying to create the existence of a hortage of sugar in the American arket to a point where consumers cannot purchase sugar when they want it. There is absolutely no basis for such intimation and we believe that the bottlers, as well as all other industrial users, clearly recognize this in spite of the intimations in some of their statements. There can be no legitimate basis for questioning the fact that the Secretary of Agriculture will make available all the sugar which will be taken from the market at something within reasonable reach of a fair price for producers. At any given time during the year his estimate may be short of the anticipated actual distribution of sugar for the full year because this is the only tool he has to try to approach the price objectives set forth in the Act. If his estimate at any time is short of the anticipated distribution for the full year, it should clearly indicate his feeling that the Act calls for some improvement in the price of sugar and he is using the tool provided in the Act to achieve this objective. It does not mean that additional sugar will not be made available when needed to satisfy the requirements of the market. Some industrial users persist in misrepresenting the objectives of the Act and the procedures which must be used in its administration by contending that it is resulting in an artificial shortage of sugar; whereas they should know that the administration of the Act has not resulted in such shortages but has merely tried to limit marketings to a rate which would not result in disastrously low prices to producers and it has not been completely successful in achieving this. Investigation of complaints of shortages have always revealed either that there was no shortage or that it was due to some factor not related to the administration of the Sugar Act.

3. At this writing (August 31, 1949) the Secretary has not yet revised his consumption estimate of December 23, 1948, although it was

indicated at that time that the current rate of annual consumption was 250,000 tons in excess of that estimate."

Following the date of the above-quoted statement, the Secretary has increased the consumption estimate by 250,000 tons. However, the statement again indicates that the Secretary should not use his powers to try to obtain a reasonable price for sugar from the standpoint of producers. Users presumably recognize that they have been able to obtain sugar at all times. Their complaint seems to be that supplies have not been dumped on the market in sufficient volume to result in ruinously low prices for producers. This is not in keeping with the American spirit of fair play, and we believe that responsible representatives of the bottling industry will recognize that sugar producers are entitled to the same fair treatment which they seek for themselves. It is in the best long-term interest of the bottlers and other sugar users that the domestic industry be maintained in a reasonably strong and productive condition; otherwise, we might become dependent for our sugar supplies upon foreign areas, alone, and perhaps only one area at that. In view of the possible emergencies which can disrupt supplies from my one area or even from several areas, this would be a very *dangerous policy.*

4. "A study of the sugar control pattern demonstrates that delay in re-allocating known deficits is just as effective in creating an artificial shortage of sugar in our market as is an under-estimate of total consumption."

Again, this statement indicates a lack of understanding, or more likely a refusal to recognize the nature of the Sugar Act legislation and the tools specified for its administration. In administering the Act, the Secretary does not create an artificial shortage of sugar for the purpose of depriving consumers of th products which they may be willin to buy. He merely limits the tota supplies available to the market a a given time until consumers, in thi case primarily the refiner-purchas ers of raw sugar, indicate a willing ness to take available supplies fron the market at reasonable prices.

5. "The influence on price o this 1,000,000-ton discrepancy be tween basic demand and controlle supply is obvious."

The import of this statement is little difficult to understand. I spite of the so-called "discrepancy sugar prices throughout the yea have been 10 to 15 per cent belo the prices which would reflect th fair treatment ratio specified in th Act. If the bottlers feel that th price this year has been too high when as a matter of fact it has bee 10 to 15 per cent below the fai treatment basis specified in the Ac then one can only conclude that thei aim is the attainment of a demora lized market price structure for su gar without regard to the cons quences to the sugar industry. W cannot believe that this is the ai of responsible elements in the in dustry. We can understand that th bottlers want to protect themselve against unduly high prices for su gar. We can safely say that pra tically all sugar producers agre with them in this objective. Follow ing the war, sugar producers too the lead in obtaining extension price control on sugar in order tha runaway prices would not resu from the existing shortage of su plies. Having taken this position i their own interests as well as in th interests of sugar users, it seem only fair that now that sugar su plies are more plentiful, large use should not attempt to drive suga prices to ruinously low levels.

6. "Many of these products wi inevitably be priced out of the ma ket if the cost of the sugar used them is unreasonably and unnece

arily high."

The Sugar Act price objective alls for a sugar price in line with ne prices of other commodities and ervices in general. Sugar prices this ear have been 10 to 15 per cent elow such fair price objective. If uch low prices for sugar as have een in effect might lead to the ricing out of the market of such ugar using products, it would seem hat something is radically wrong ther than the price of sugar. In ny event, as long as sugar already s relatively lower-priced than most ther commodities, it certainly should ot be required to bear any addi- ional part of the burden of keep- ng any one in business at the ex- ense of the existence of major seg- nents of its own industry.

7. "Certainly the sugar produ- ers are provided with evidence that n his administration of the Sugar ct, the Secretary of Agriculture as fulfilled, both generously and ef- ectively, its secondary objective— o protect the welfare . . . of those ngaged in the domestic sugar pro- ucing industry.'"

This gratuitous statement is whol- erroneous and misleading. In the irst place, sugar producers are *not* rovided with any evidence that a enerous price has been achieved or their product; on the contrary, nost of them feel that the price has ot reached a fair level. In the sec- nd place, the Act's specified intent to protect the welfare . . . of those ngaged in the domestic sugar pro- ucing industry" is *not* its secondary bjective. It is presumptious to state hat the primary objective is "to rotect the welfare of consumers of ugar" just because this statement ppears ahead of the other in the ct. Obviously both statements could e put first. Sugar producers make o contention whatever that the Act hould not be administered so as to rotect the welfare of the consumers f sugar. They fully recognize that his is a legitimate objective of the legislation and they want to see it fulfilled. However, they also feel they are entitled at the same time to ask for reasonable treatment for themselves.

In the illustration showing the composition of the national average retail price of sugar, the 91 cents labeled "Premium U.S. Refiner must pay over World Price" gives an entirely erroneous impression regarding the nature of sugar prices. The illustration apparently is designed to give the impression that if we did not have the Sugar Act, U.S. refiners could buy Cuban raw sugar at the current world price instead of at the current price. An elementary analysis of the sugar market structure will show this to be false. Cuba depends upon the U. S. market for a substantial part of her income from sugar. After marketing as much sugar as possible in the U. S., she has been willing to sell additional quantities on the world market at lower prices, but she has been careful to take such restrictive steps as she deemed necessary to keep the price for her sales on the world market up to a point which gave her a favorable over-all return when averaged in with sales at the U. S. market. In the absence of Sugar Act restrictions, Cuba could be expected to continue to strive for the same over-all return and her price for all sales could be expected to be much closer to the current domestic price than to the world prices.

Applying Section 201

Primarily, according to the provisions of Section 201, we should ascertain the distribution figure on sugar between November 1, 1948 and October 31, 1949. According to the Sugar Branch, this figure is 7,650,000 tons, in round numbers. Our inclination is to consider this figure as not being very representative, as the distribution figures since November 1st have been very much less by comparison.

The population figures for 1949 would indicate an increase of almost 2,000,000 but a very large percentage of this increase is represented by babies just born, and we do not believe that it is realistic to accord to this disproportionate number of infants the same relative status as full grown citizens. Accordingly, we are suggesting an increase of approximately 75,000 tons, to be added to the 7,650,000, which nets 7,725,000 tons.

The level and trend of consumer purchasing power is pretty much anybody's guess. Most economists suggest there will be a more cautious attitude on the part of the housewife and the average consumer. As a result, we believe that the better part of wisdom suggests that we should be very conservative about demand conditions.

The steel strike which has just been settled has brought about a development not only in that industry but in many other industries dependent upon it, especially the railroads. The coal strike most likely will continue into 1950. A large proportion of the ready-buying to which highly paid labor had accustomed itself has changed to the payment of debts incurred while unemployed, with the resultant attitude of being very much more careful about expenditures. Luxuries are the first to be stricken off the list, and to a very definite extent, this will affect the purchasing of sweets and desserts, i.e. sugar and sugar products.

As a result, we sincerely believe that the Secretary of Agriculture should be more cautious than ever in his estimate of what conditions are likely to be throughout 1950. In our opinion, it is not absolutely necessary that the Secretary must anticipate or assume the role of a "prophet" in arriving at his determination with respect to the probable requirements of sugar throughout 1950. We suggest that he should proceed with extraordinary care and we further believe that the situation calls for his being reluctant t over-shoot the mark. It would b much better from the administrativ standpoint for the Secretary to nam a low figure which would maintai the stability of the sugar market an and which could be adjusted whe the facts become evident as we pro ceed farther along the road of th early part of 1950. There will b plenty of sugar available to tak care of our consumer requirement in the first half of the year. Then the Secretary will have the advan tage of facts which are develope in the ordinary and the orderl course of business. No harm ca result from this from the stand point of the consumer, and it i always better for the Secretary t have the assurance and support o actual conditions rather than to pre sume any or all of them.

It is a mistaken idea, and hardl within the contemplation of the leg islators who enacted the Sugar Ac that the Secretary should plan t make his initial consumption est mate apply for the entire year. H will have ample opportunity to bas any changes on conditions whic have come about, at the same tim protecting the welfare of the con sumer and maintaining, in accord ance with Section 201, the domest sugar industry in all of its element

Therefore, we suggest that he de duct from the actual consumptio figures 300,000 tons, giving a figur of approximately 7,425,000 tons.

"Over-All and Controlling" Facto

We now come to the most impor tant factor among those enumerate in Section 201. We state in all frank ness that it becomes the duty of th Secretary of Agriculture to give th feature his most earnest attentio We know that the Secretary is com mitted to maintaining the income o farmers generally. He has mad that very clear and he has been ver insistent upon the merits of th

dea. While we have our own Sugar Act and we are not dependent upon ny relation to parity such as other ommodities are, we, nevertheless, as roducers of sugar beets and sugar-ane, claim our right to a relative quality of treatment from the tandpoint of partity and income.

As a matter of fact, Congressman lifford R. Hope, then Chairman of he Agriculture Committee of the Iouse, mentioned specifically that he provisions of Section 201 were ctually placed in the Sugar Act in ieu of a parity provision, although ery much on the same basis from he standpoint of the cost of produc-ion increases since 1947. Our grow-rs have been very patient in view f the fact that the good intentions f the Secretary of Agriculture have een resisted to a large extent by ertain activities, mostly in the New ork sugar market, which have had ne effect of nullifying substantially ne constructive acts of the Depart-ient of Agriculture.

The raw sugar market has been rought a long ways from May, 1948 hen the price reached a low of 5¢. his raw sugar market has been fair-strong in the late summer months; ut it has weakened again, having eached a point of 6.05¢ for raw igar some weeks ago. It has now een gradually brought down to the nsatisfactory price of about 5.85¢. Ve must not forget that the price f raw sugar under the O.P.A., when igar was de-controlled, was estab-shed at 6.32¢. In view of the fact iat there has been no change in ie provisions of the Sugar Act of 946, we should be obtaining a price ightly above 6.32¢ in order to pro-ide against the increase in the cost f production since 1947.

The Secretary would be justified, nder the Sugar Act, in deducting a irther 200,000 tons for the pur-ose of adjusting quotas in such anner as to bring about the price ntemplated by Section 201. Ad-ittedly, this must be an arbitrary figure, although we have last year's experience to go by. The figure for 1949 was 7,250,000 tons. It did not bring about, to the satisfaction of the producing industry, a price for raw sugar. The refiners resisted it, and to that extent, they nullified the action which was intended by the Secretary of Agriculture to produce a better price.

The simple fact is that Section 201 does provide this "over-all and controlling factor" by which the Secretary could produce the fair results for the producer and still be reasonable to the consumer. We may as well be very frank about this in saying that the consumer must adjust his thinking in the light of present-day conditions. It appears very apparent to us that the housewife has been very realistic about the price of sugar and that she recognizes that the price is not too high when she compares it with the price of other things she has to buy. Under these circumstances, and in keeping with his announced policy, we recommend such a figure to the Secretary of Agriculture as completely justified. Thus we have:

Last 12-months consumption	7,650,000 tons
Plus for population increase	75,000
	7,725,000
Less for reduced Demand Conditions	300,000
	7,425,000
Less for price adjustment	200,000
	7,225,000 tons

This figure we think completely justified, on the basis of the simple fact!

Last year, the Secretary estimated the 1949 consumption at 7,250,000 tons. This should have accomplished his purpose of bringing about a price slightly above 6.32¢ per pound of raw sugar. It did not! So we ask for a figure slightly lower, conscious of the increase in the population of the U.S.A., in the hope that a better price will result. The Secretary can adjust to his satisfaction, as the facts become established.

Molasses Price

It is a very stern fact that during the war, when the price of blackstrap molasses increased in price much more importantly than did sugar, the Secretary of Agriculture directed the processors in Louisiana to pay more for their sugarcane on account of blackstrap molasses. As a result, producers of sugarcane in Louisiana received a premium which amounted to approximately 30¢ per ton of cane during these war years. Immediately following the declaration of peace, the price of molasses went down drastically, with the result that the sugarcane producer must now depend entirely upon the 'raw sugar price' to obtain his proportionate share of the sugar dollar. This has had the effect of reducing the price of cane in view of the fact that the price of raw sugar, in the meantime, has not gone up at all in the proportion necessary to bring to the producer his fair proportion. The costs of production, however, have risen and the grower is not provided with the proper protection, unless the Secretary chooses to assert the mandate given him by Congress to protect and maintain the welfare of the sugarcane producers, as well as other domestic producers.

Minimum Wage Rate Up to 75c From 40c

In addition, your attention is very pointedly directed to the passage of certain amendments to the Fair Labor Standards Act in the recent Session of Congress. In effect, the Act provides for an increase from a minimum wage of 40¢ to a minimum wage of 75¢. Of course, our raw sugar processors had been paying a minimum in the neighborhood of about 55¢ but they are required to raise all of their wages. Not only the minimum wage, but the effect of the minimum rate being advanced has been to increase the rates per hour being paid all employees of the factory.

We are pleased to present, as par of our testimony, the statement o Dr. J. Norman Efferson, Economis Louisiana State University Agricul tural Experiment Station, Bato Rouge, Louisiana, who has bee studying intimately the costs an profits or losses in the factories o the Louisiana sugar industry fo over ten years. His opinion is highl regarded not only by the sugar in dustry, but by the U. S. Departmen of Agriculture, which recently sen him throughout the world to inquir into the costs and the prospects c the rice industry.

In the opinion of this well-recog nized economist and statistician, would require 'an increase in th price of sugar of at least 25¢ i order "to offset the effects of th 75¢ minimum wage scale, if the in dustry is to be maintained on a rea sonably solvent basis." His opinio was written at a time when th price of raw was 6¢ at New Orlean

Minimum Wage Rates for Field Labor

There is not only a question abou the ability of the factory owners t pay the 75¢ minimum rate and skil ed labor in proportion, but there the very definite threat which a lov er price offers to the farmers ar their ability to continue to pay th relatively higher rates to their em ployees in accordance with the wag determination, published by the Se retary of Agriculture on Septembe 9, 1949. We present herewith th table of the relationship between th raw sugar price and the basic wag rates during the 1949 grinding sea son. It will be noted that the farme pays less as the price of raw sug gets lower; this the farmer prefe not to do, as he wants to mainta a higher standard of living for h employees.

Intent of Congress

It will be noted that Congressma Clifford R. Hope, then Chairman the House Agriculture Committee,

resenting the Sugar Act to the ouse, commented as follows:

"In general, of course, that is analogous to the parity provision accepted as a standard in determining fair agricultural prices. It relates the cost of sugar to the cost of other commodities. That is one of the conditions which the Secretary *must* take into consideration along with the others which I have mentioned."

Similarly, Senator Eugene D. Milkin, then Chairman of the Senate inance Committee, commented in ıe following manner at the time of is presentation of the Sugar Act to ıe Senate:

"The Secretary does not have to give any special weighting to any of those factors, but he must consider all of them and reach his decision. The *over-all controlling* guide is the provision which requires the establishment of a supply of sugar which will be consumed at prices which will not be excessive to consumers, and which will fairly and equitably maintain and protect the welfare of the domestic sugar industry."

There is contained in the reports both the Agriculture Committee the House and of the Finance ommittee of the Senate this signifiınt comment which, interpreted ong with the pointed language of ection 201, can mean only that it as intended to provide the Secreıry of Agriculture with a *mandate* om Congress:

"The *over-all* or *controlling* guide is the provision which requires the establishment of a supply of sugar which will be consumed at prices which will not be excessive to consumers and which will fairly and equitably maintain and protect the welfare of the domestic sugar industry."

The intent of Congress was made very clear that this cost of living relationship should be the over-all and controlling factor in the determination of price. It thus becomes the dominant objective of Section 201 There is nothing ambiguous about the language in the law or the reports of the Committees before whom the Sugar Act was considered and written.

This occasion is not appropriate nor is this the proper forum to discuss or to suggest changes in the Sugar Act. Congress determines the policies of the U. S. Government and it has repeatedly re-asserted the principles of the Sugar Act. The latest enactment was the Sugar Act of 1948 which has a term of five years, beginning January 1, 1948. Therefore, we object pointedly to any attempt at this hearing to offer or to discuss amendments to the Sugar Act. Congress is the proper forum and to them should such proposals be submitted. This hearing is called specifically to determine the 1950 consumption estimate, subject to the provisions of Section 201 of the Sugar Act.

Announcement of Policy

As we recommended last year, when the 1949 estimate of consumption was being considered at hearings held under the provisions of the Sugar Act, a statement of price policy on the part of the Secretary of Agriculture would be most appropriate and helpful at this time. The market has been prone to make its own interpretations of the significance of various actions taken by the Secretary of Agriculture. We prefer to have the Secretary take a more definite position.

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TABLE OF RAW SUGAR PRICE RANGES AND APPLICABLE BASIC WAGE RATES[1]

Operations	Price ranges—2 weeks' average price of 100 pounds raw sug (duty paid basis, delivered)						
At least	$5.201	$5.301	$5.401	$5.501	$6.100	$6.200	$6.30
But not more than	$5.300	$5.400	$5.500	$6.099	$6.199	$6.299	$6.39
Basic day wage rates per 9-hour day:	Base Price Range $5.60-$6.00						
Cutting, topping, stripping:							
Adult males	$3.305	$3.370	$3.435	$3.500	$3.565	$3.630	$3.69
Adult females	2.855	2.920	2.985	3.050	3.115	3.180	3.24
Loading	3.955	4.020	4.085	4.150	4.215	4.280	4.34
Cutting and loading	3.505	3.570	3.635	3.700	3.765	3.830	3.89
Tractor drivers and Truck Drivers	4.055	4.120	4.185	4.250	4.315	4.380	4.44
Teamsters	3.855	3.920	3.985	4.050	4.115	4.180	4.24
Hoist operators	3.505	3.570	3.635	3.700	3.765	3.830	3.89
Operators of mechanical loading or harvesting equipment	4.405	4.470	4.535	4.600	4.665	4.730	4.79
Pilers	3.505	3.570	3.635	3.700	3.765	3.830	3.89
Grabmen, spotters, ropemen	3.955	4.020	4.085	4.150	4.215	4.280	4.34
Scrappers	3.305	3.370	3.435	3.500	3.565	3.630	3.69
Any other operations connected with harvesting	2.855	2.920	2.985	3.050	3.115	3.180	3.24
Basic piecework rates per ton:							
Large barrel varieties:[2]							
Cutting top and bottom, and stripping	1.275	1.300	1.325	1.350	1.375	1.400	1.42
Cutting top and bottom	.805	.820	.835	.850	.865	.880	.89
Loading	.425	.430	.435	.440	.445	.450	.45
Cutting top and bottom, stripping and loading	1.700	1.730	1.760	1.790	1.820	1.850	1.88
Cutting top and bottom, and loading	1.230	1.250	1.270	1.290	1.310	1.330	1.35
Small barrel varieties:[2]							
Cutting top and bottom, and stripping	1.560	1.590	1.620	1.650	1.680	1.710	1.74
Cutting top and bottom	.990	1.010	1.030	1.050	1.070	1.090	1.11
Loading	.500	.510	.520	.530	.540	.550	.56
Cutting top and bottom, stripping and loading	2.060	2.100	2.140	2.180	2.220	2.260	2.30
Cutting top and bottom and loading	1.490	1.520	1.550	1.580	1.610	1.640	1.67

[1] For each successive full 10-cent price change above $6.30 or below $5.30, the basic wage rates shall be increased decreased, correspondingly, by the same amounts as shown above for each full 10-cent price change.

[2] Large barrel varieties: Co. 290; CP 29/103; CP 29/116; CP 33/243; CP 36/13; CP 36/105; CP 29/120. Sm barrel varieties: all other.

PROBABLE EFFECTS OF THE 75-CENT MINIMUM WAGE O THE LOUISIANA RAW SUGAR MILLING INDUSTRY

By J. Norman Efferson, Economist, Louisiana Agricultural Experiment Station

In recent years the raw sugar industry of Louisiana has operated under a 40-cent minimum wage rate. Based on the annual Louisiana Agricultural Experiment Station economic studies of producing raw sugar, the total labor cost has averaged about $100,000 per mill annually for the 1943-47 period. Of this amount, $45,000 per mill was paid out at the 40-cent rate and $75,000 was paid at less than 75 cents per hour.

In contrast to 1943-49 levels, the minimum wage rate in 1950 will be 75 cents per hour. Based on the 1943-47 labor costs and relative wage payments, this will mean an increase in labor costs per mill per season from about $100,000 to $150,000, or a net increase of about $50,000 per mill. However, some i crease in wage rates per hour ha occurred in 1948 and 1949 in co trast to the 1943-47 period. Th a conservative estimate of the n increase in labor costs for operati the average raw sugar mill in Louis ana in 1950, as compared with 19 and 1949, is likely to be closer $30,000 per mill.

For the 5-year period 19 through 1947, total costs of raw s gar production in Louisiana ave aged about $650,000 per mill p year. Net income above all cos averaged about $20,000 per mill a nually or 15 cents per hundr pounds of raw sugar manufacture The average capital investment p mill was around $500,000; thus t annual net income before incon

ixes for this period amounted to 4 ercent on the investment. Al- iough the final figures for the 1948 ason are not available, prelimi- ary data indicate that earnings in 948 were below the preceding 5- ear average. Losses were so great some instances that six raw sugar ills in Louisiana ceased operations the close of the 1948 season.

The facts indicate that the in- ease in the minimum wage rate om 40 to 75 cents will increase ie costs of producing raw sugar Louisiana by about $30,000 per ill or about 23 cents per hundred ounds of raw sugar. Average net rnings in recent years were $20,- 00 per mill or 15 cents per hundred ounds of sugar. Based on past re- lts, the indications are that a minimum wage of 75 cents per hour for the Louisiana raw sugar industry in 1950 will increase costs of production by almost 25 cents per hundred pounds and, with average yields and efficiency, will result in a net average loss of $10,000 per mill, about 10 cents per hundred pounds of raw sugar produced, or a loss of 2 percent on the capital investment. This compares with recent 5-year earnings of 4 percent annually on the investment.

These results point to the conclusion that an increase in mill income approximating 25 cents per hundred pounds of raw sugar will be needed to offset the effects of the 75-cent minimum wage rate, if the industry is to be maintained on a reasonably solvent basis.

950 SUGARCANE MINIMUM WAGE RATES FOR NONHARVEST WORK IN LOUISIANA

The U. S. Department of Agricul- re announced on December 5th inimum nonharvest wage rates uring 1950 to be paid by sugar- ne producers in Louisiana who ap- y for payments under the Sugar ct.

The basic wage rates and the age escalator applicable during the lendar year 1949 remain unchang- for the calendar year 1950 ex- pt that wage increases become ef- ctive for each full 10-cent increase the average price of raw sugar r a continuous two-week period ove $6.00 per one hundred pounds stead of $6.25 as was the case in 49. For each full 10 cents that e average price of raw sugar is ove $6.00 or below $5.60, day age rates will increase or decrease cents per day.

Within the base price range of w sugar ($5.60-$6.00 cwt.) the ba- wage rates vary from $2.90 per hour day for adult males doing neral unclassified work to $3.65 r 9-hour day for tractor drivers.

The average of raw sugar prices and the effective wage rates will be available to producers and workers at the Louisiana State and Parish offices of the Production and Marketing Administration, U. S. Department of Agriculture. It will be the responsibility of each producer to ascertain the average price of raw sugar and the effective wage rates in order to pay not less than the required rates.

In addition to the wage payments, producers are required to furnish these workers, without charge, a habitable house, medical attention and other perquisites customarily supplied.

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THE MARKETS

(November 13, 1949)

In the raw sugar market only s quotable sales of Louisiana rav have been recorded by the Louis ana Sugar Exchange since the sta of the pricing period. These we at 5.88 cents per pound, delivere New Orleans, on November 15th, 5.85 on November 17th, and 5.80 on November 21st, Novembe 23rd, November 25th, and Noven ber 29th. No other quotable sal to the local refiners have been r corded and the Exchange has use the New York spot quotation, a justed to a New Orleans basis b deducting the freight differenti between Cuba and New York ar Cuba and New Orleans, for all dai prices in the absence of Louisian sales.

The Louisiana blackstrap molass market has been very active sin the middle of November. Thirt eight sales have been recorded b the Exchange since November 21 with prices ranging from 5½ cen a gallon, to 5⅞ cents a gallon, bulk f.o.b. plantation. The pictu of this market has become decided blurred as will be seen from th following record of sales. On N vember 21st there were six sal of Louisiana blackstrap recorde three at 5½ cents a gallon an three at 5⅞ cents a gallon. C November 25th a single sale w reported at 5⅞ cents a gallon. C

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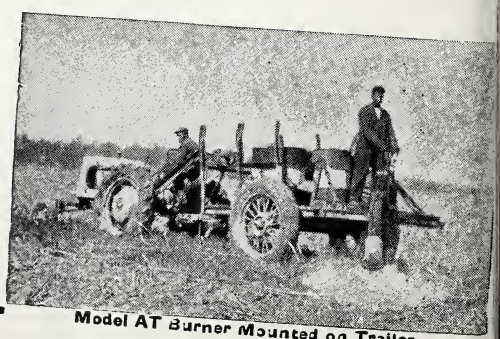

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November 28th there was one sale at 5⅝ cents and two at 5⅞ cents. On November 30th sales were recorded at 5½ cents, at 5⅝ cents, and at 5⅞ cents a gallon. On December 1st there was one sale at 5½ cents and another at 5⅞ cents. On the 2nd of December two sales were recorded, one at 5⅞ cents and the other at 5½ cents. On December 6th the prices were 5⅝ cents and 5⅞ cents. On December 7th a single sale was recorded at 5⅞ cents. On December 8th there were two sales at 5⅝ cents and two at 5⅞ cents. On December 9th two sales were recorded at 5⅝ and one at 5⅞ cents. On December 12th there were two sales at 5⅝ cents and one at 5⅞ cents, and on December 13th there was a sale at 5⅝ cents and another at 5⅞ cents.

With all these gyrations in the market it is practically impossible to get any clear idea of true value of blackstrap. We understand that the quanity involved in the sales has not been large but, even at the minimum quantity required to make a quotable sale which is 5 tank cars, over a million and a half gallons of blackstrap has been sold.

Official weekly averages quoted by the Louisiana Sugar Exchange, Inc., since the start of the pricing period have been as follows:

Week ending October 13, 1949
Raws 5.95. Blackstrap 5 cents.
Week ending October 20, 1949
Raws 5.99. Blackstrap 5.10 cents.
Week ending October 27, 1949
Raws 6.03. Blackstrap 5.425 cents.
Week ending November 3, 1949
Raws 5.98. Blackstrap 5.625 cents.
Week ending November 10, 1949
Raws 5.94. Blackstrap 5.781 cents.
Week ending November 17, 1949
Raws 5.87. Blackstrap 5.875 cents.
Week ending November 24, 1949
Raws 5.85. Blackstrap 5.828 cents.
Week ending December 1, 1949
Raws 5.77. Blackstrap 5.781 cents.
Week ending December 8, 1949
Raws 5.72. Blackstrap 5.788 cents.

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THE SUGAR BULLETIN

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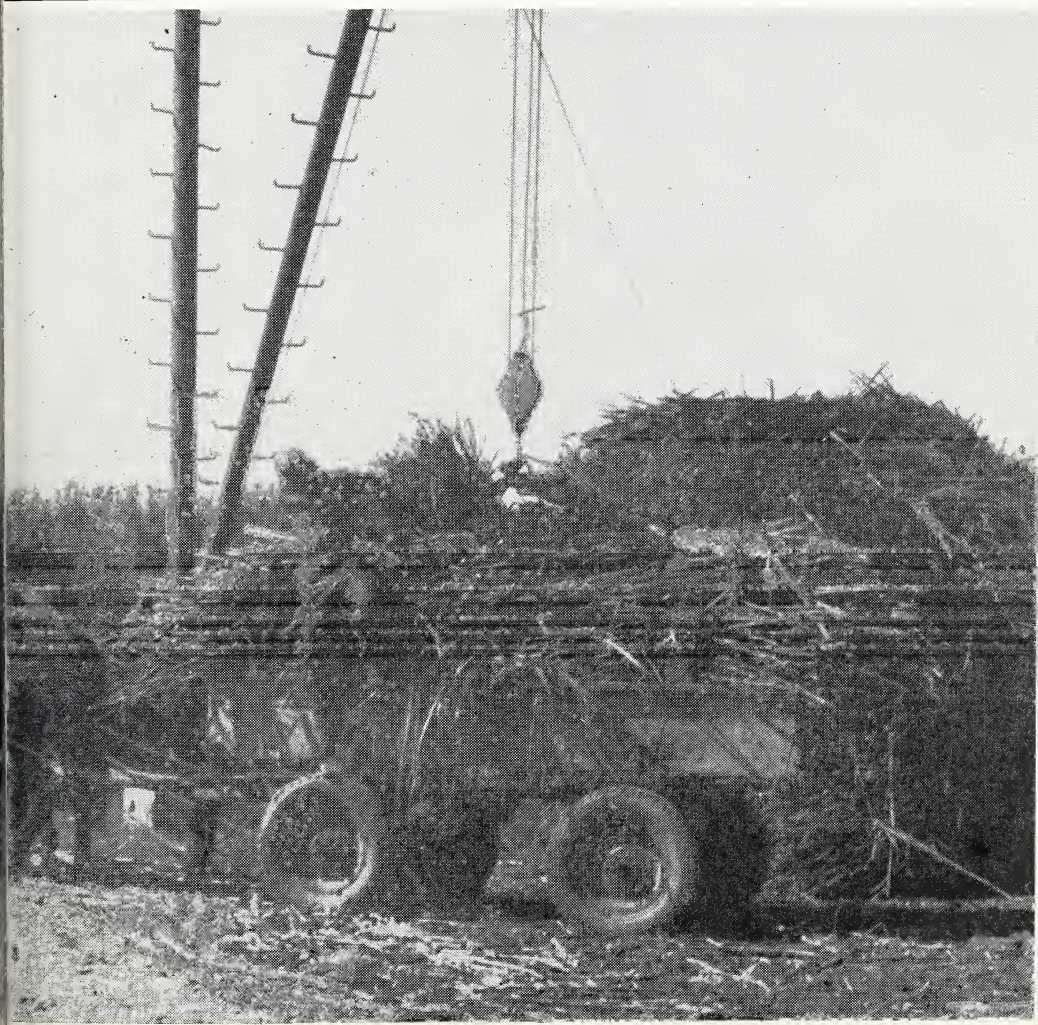

Field Derrick in Louisiana

THE
SUGAR BULLETIN

414 Whitney Bldg., New Orleans 12

MARCEL J. VOORHIES, Editor

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IN WASHINGTON WITH C. J. BOURG

Supplemental Statement of Clarence J. Bourg

Supplemental Statement of Clarence J. Bourg, Vice President and Attorney for the American Sugar Cane League of New Orleans, Louisiana In Connection with Public Hearings Held November 30, 1949 Relative to the 1950 Continental U. S. Sugar Requirements

) THE DIRECTOR
JGAR BRANCH
RODUCTION AND MARKETING
ADMINISTRATION
S. DEPARTMENT OF AGRICULTURE
ASHINGTON, D. C.

We have just received from the ouisiana Sugar Exchange, Inc., the test report which shows that the ice for raw sugar at New Orleans Thursday, December 8, 1949, was 72¢ per 100 pounds.

This is so far below the price of 47 under the O.P.A. and the Secretary of Agriculture, that we respectfully direct it to your attention the hope that you may recommend a figure for the consumption quirements in 1950 which will bring about a price nearer to the 6.32¢ which existed under O.P.A. and the Secretary of Agriculture, plus some consideration for the well-known increases in the costs of production.

May we emphasize in a special manner the fact that the pricing season for raw sugar and for sugarcane in Louisiana comes only between October 10th and February 1st in any year. Louisiana growers and raw sugar producers must obtain the average price for their products during this period; otherwise, they are forced to wait a whole year before they can hope to benefit by the action of the Secretary of Agriculture.

AREA SUGAR QUOTAS ESTABLISHED FOR 1950

The U. S. Department of Agriculre on December 22nd announced gar quotas for domestic and forgn producing areas for the calenr year 1950 under the Sugar Act 1948. These quotas are establishon the basis of (1) the determition announced on December 22, 49, that 7,500,000 short tons of gar, raw value, are needed to meet e requirements of consumers in e continental United States and (2) a deficit of 30,000 short tons of raw value, in the statutory quota for the Philippines.

The adjusted quota for the Philippines is 682,000 short tons, raw value.

The quota for Cuba is 2,504,400 short tons, raw value, and for "Other foreign countries" is 45,600 short tons, raw value. The quotas for all

(Continued on page 111)

CONSUMPTION REQUIREMENTS

Summary of Statement Made by Robert H. Shields, President and General Counsel, United States Beet Sugar Association, at hearing on 1950 Sugar Consumption Requirements Before the Department of Agriculture, November 30, 1949

1. Section 201 of the Sugar Act of 1948 requires that the Secretary of Agriculture shall administer the quota provisions of the Act so that the supply of sugar available to consumers in the continental United States will result in a price for sugar which will fairly and equitably maintain and protect the welfare of the domestic sugar industry at the same time that prices to consumers are not excessive.

2. In this connection, the Secretary of Agriculture has called a hearing to be held November 30 in the Auditorium of the South Agriculture Building, Washington, D.C., to permit interested persons to present facts and recommendations with respect to the amount of sugar which should initially be announced as required for consumers in 1950 in order to carry out the objectives of the Act.

3. That the welfare of the domestic beet sugar industry is not being fairly and equitably maintained and protected as the Act requires is indicated by the fact that for two successive years; 1948 and 1949, the industry has been unable to produce and market its full statutory quota of 1,800,000 tons. The reason for this is that the price of sugar, resulting from the administration of the Act, has not kept the prices for sugar beets in line with commodities which compete with them. Even with exceptionally favorable growing conditions, 1949 sugar beet crop will probably be only about 1,550,000 tons, 15 percent below the statutory quota of 1,800,000 tons.

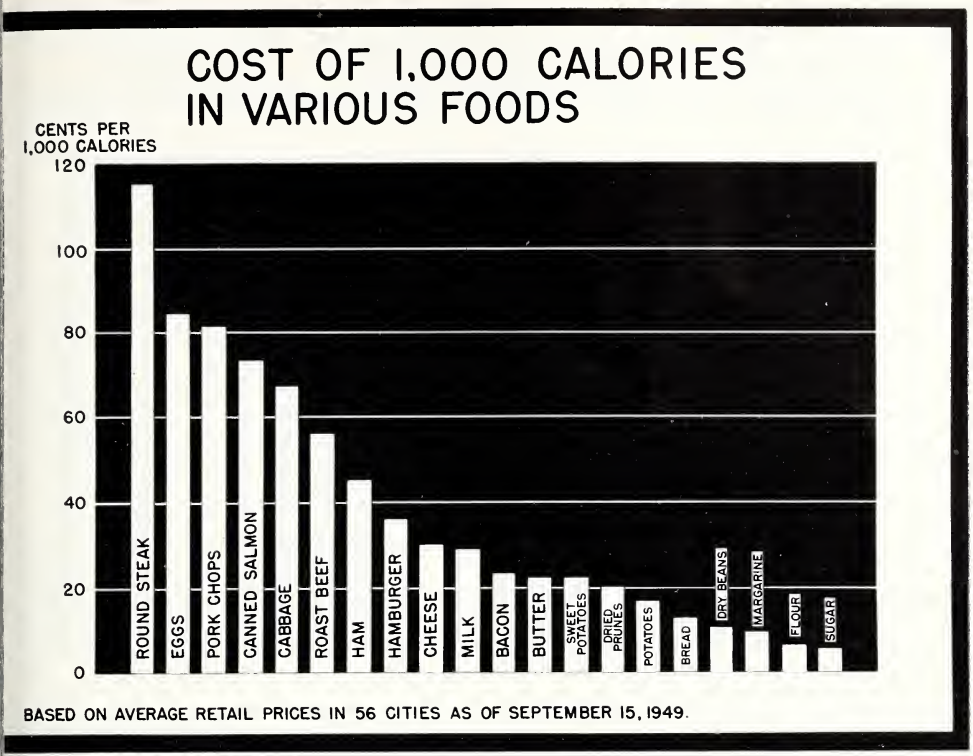
4. Not only has the price of sugar beets been out of line with the prices of crops which compete with them, but the price of sugar beet which under processor-grower co tracts is derived directly from t price of sugar, is out of line wi the cost of things which farme buy. Today the cost of most thin which farmers buy is as high higher than two years ago wh the price of sugar, still under pri control, was $8.40. Today the pri of sugar is only $8.05.

5. In order that a somewhat hig er price for sugar may obtain 195 the United States Beet Sugar Ass ciation recommends that the Secr tary initially determine the 1950 s gar consumption requirements not in excess of 7,200,000 tons. Th compares with an initial determin tion last year of 7,250,000 tons.

6. The $8.05 price of sugar t day is extremely favorable from t consumers' point of view. The fo mula in the Sugar Act for dete mining when the price of sugar excessive to consumers—the 19 cost of living-price relationship fa tor—indicates that a price of $8. would not be an excessive price. year ago the Secretary of Agricu ture indicated that a price of least $8.40 might be necessary fai ly and equitably to maintain the d mestic sugar producing industry.

7. Today sugar is the cheape food on the market. The Americ housewife and the industrial sug user can buy more energy pr ducing units per dollar spent on s gar than any other food. At prese retail prices, the housewife can b 1,000 calories of food in the for of sugar for 5.3 cents. (See cha attached to Statement.)

8. Sugar is not only cheaper th any other food in the United Stat at the present time, but there h



een a trend over the years in this untry of cheaper sugar prices in lation to prices of other foods. See chart attached to Statement.)

9. Today the price of sugar in e United States is cheaper than most other countries of the world. ore important, with one minor exption, the price of sugar in the nited States considered in relation the buying power of consumers cheaper than in any other couny of the world. The average indusial worker in the United States rns enough in four minutes to pay r a pound of sugar, the shortest me required in any country in the orld. (See chart attached to Stateent.)

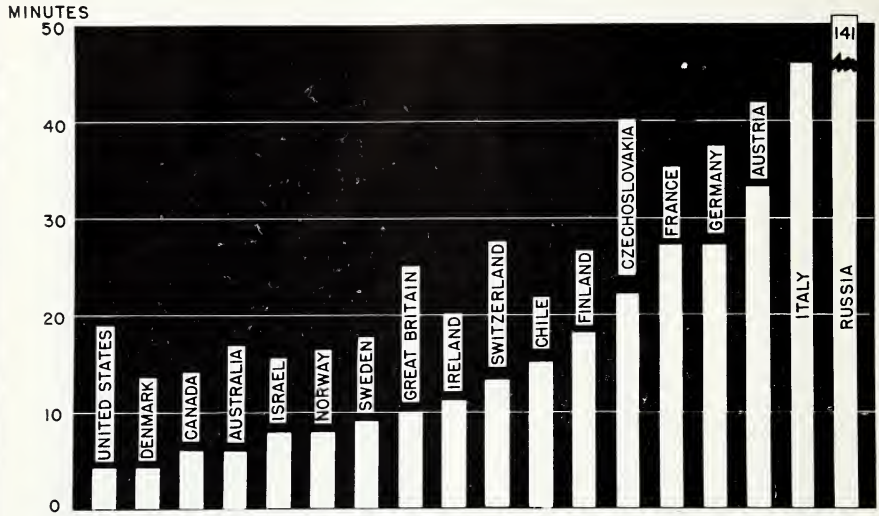
10. Not only is sugar cheaper to e American consumer in terms of rchasing power than to consums in any other part of the world, t, except in World War II when gar prices to consumers were sublized, sugar is also cheaper in the United States in terms of purchasing power than it has ever been before. (See chart attached to Statement.)

11. At today's prices, the annual average per capita bill for direct purchasing of sugar is only $4.75—based on an average of fifty pounds per person purchased directly for home use.

12. The improvement needed in the present price of sugar to enable the domestic beet sugar industry to be fairly and equitably maintained and protected as the Act requires would still leave sugar the cheapest food the American housewife can buy and would have only a negligible effect on per capita food costs.

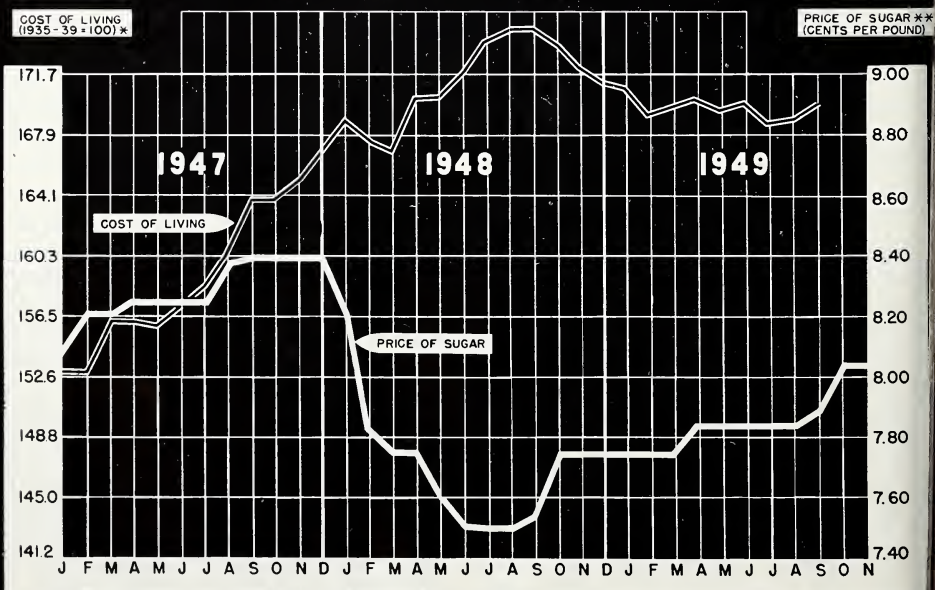
13. In making his determination of sugar consumption requirements, the law requires that the Secretary take as a point of departure the amount of sugar distributed in the 12 months ending October 31, and

WORKING TIME REQUIRED TO EARN ENOUGH TO BUY ONE POUND OF SUGAR



REPORT OF BUREAU OF LABOR STATISTICS
NOVEMBER, 1949

PRICE OF SUGAR COMPARED WITH COST OF LIVING



* CONSUMERS' PRICE INDEX, BUREAU OF LABOR STATISTICS.
** WHOLESALE PRICE OF REFINED SUGAR AT NEW YORK FOR BULK SUGAR DELIVERED EACH MONTH

hen specifies that this basic figure hall be adjusted for 5 statutory actors: (1) for a surplus or deiciency of sugar stocks; (2) for an ncrease in population over previous ear; (3) for current demand condiions; (4) for the level and trend f consumer purchasing power; and 5) for the relationship between the holesale price of refined sugar and ne general cost of living.

14. The United States Beet Sugar ssociation recommendation that the nitial 1950 sugar consumption estiate be 7,200,000 tons is arrived at y increasing the basic 12 months' igure of 7,648,000 tons by 96,000 ons for an increase in population, y decreasing the figure by 200,000 ons for slackening demand condiions, and 350,000 tons in order to ring the price of sugar somewhat ore in line with the general cost f living.

15. In 1949 the Secretary's initial onsumption estimate was 7,250,000 ons. Against the more favorable conomic background which then obained, the 7,250,000 ton quota reulted in only a modest approach oward the Secretary's price objecve of $8.40. This modest gain aleady is threatened by a recent decline of 20 cents or more in the price of raw sugar. Accordingly, considering the present downward trend in general economic activity in the country, which indications are will continue into 1950, it is believed that only an initial consumption estimate of not more than 7,200,000 tons will enable the domestic beet sugar industry to be fairly and equitably maintained and protected as the Act requires. The initial 7,200,000 ton figure, of course, would be subject to such increases as might prove later on in the year to be needed just as the initial consumption estimate in 1949 was increased in September to 7,500,000 tons.

Since this Statement was prepared, the Bureau of Labor Statistics has announced that the Consumers' Price Index as of October 15, 1949, *is* 168.5. *When this Statement was prepared, the latest available figure for the Consumers' Price Index was* 169.6 *which is the index as of September* 15, 1949 (*see page* 15 *of Statement*). *The price for sugar indicated by the cost of living-price relationship factor in Section* 201 *of the Sugar Act of* 1948, *on the basis of the index as of October* 15, 1949, *is* $8.83 *per hundred pounds.*

THE SUGARCANE BORER

The Borer Problem — Its Present Status — The Outlook for 1950 — Program of Control

By A. L. Dugas, Associate Entomologist, Louisiana Agricultural Experiment Station

eport to Executive Committee of the American Sugarcane League
November 23, 1949

The seriousness of the borer roblem at the present time places near the top of the list of obstaes facing the cane industry. The igarcane borer, which had been ell under control from 1943 hrough 1948, returned in full force his year and has done severe damge over a large part of the cane owing area. So severe and widespread is the injury that some feel that this insect now threatens the cane industry. This is especially true if we should experience another mild winter favorable for its overwintering.

The role now being played by the borer is not new to the industry. Back in 1925 and '26 this pest was one of the important contributing factors to the complete failure of our native canes. It is true that these varieties had mosaic and red rot but

many of the prominent growers of that time readily admit that it was the heaviest borer infestation in history that almost completely destroyed the sick canes. The same is partially true today, though not as widespread, but just as serious on many places.

This report deals with the borer problem, its present status, the outlook for 1950, and a program of control.

The Borer Problem

Many growers are no doubt familiar with what the borer looks like but may not have sufficient knowledge of its habits and seasonal history, the pertinent facts upon which the control recommendations are based.

The "borer" which burrows up and down the cane stalks is of course the immature stage of the insect. The adult is a straw colored moth which is active at night and hides during the day, so is not often seen by the casual observer. The female moths lay their eggs in batches in shingle form on the leaves and the small worms hatch out and find their way into the bud of the plant or into the leaf sheath, later boring into the stalks.

During late fall and winter, November to March, borer larvae are hibernating in cane, and in grasses. Overwintered borers begin to pupate in late February and March, and moths emerge in large numbers the first week of April. Eggs are laid on young cane, and to a limited extent on corn, to start the first generation. In late May and early June, deadhearts, or dying of the central whorl of the plants, follow first generation attack. Borers reach maturity in June and the moths begin laying eggs for the second generation about the first week of June. A third, fourth and occasional fifth generations develop before winter, and borers usually begin to hibernate in late September or October. This year larvae are still active in December and a continuing to severely damage stan ing cane in some fields.

The deadhearts caused by fir generation borer attack are the fir signs of borer damage but are n really important. There are no join on the plants at that time and suc ers sprout out from the injur plants. Significant injury begi with the attack of second gener tion borers on the first 5 to joints, and continues with later ge erations mostly on newly form joints. Many plants are stunted a fail to produce millable stalks. Th accounts for an uneven top line a makes the amount of cane on a ro appear much smaller. The ey sprout out, with those below grou producing large green sprouts suckers very low in sucrose. To die and fall over or the stalks m break in two. By stripping the leav from the stalk, the entrance hol and emergence holes are quite a parent. Splitting of the stalk r veals the borer tunnels and in v rieties such as Co. 290 a high i fection of red rot disease is usual present. These stunted plants, bro en tops and broken stalks, togeth with excessive eye sprouting ma harvesting either by hand or m chine very difficult. The stoppag and extra scrapping increase ha vesting costs.

With an increase in borer inju there is a corresponding decrea in yield of cane and sugar, in s crose and purity.

Many growers do not realize t extensive damage done by bore Losses up to seven tons to the ac have been measured in the insec cide experiments. Damage does have to be very extensive to a count a one ton loss per acre.

For several years borer infes tions appeared in localized are mainly in the lower sections of I fourche and in St. Mary Parish The infestation is now scatter throughout the cane belt and loss

re not confined to the restricted reas. Therefore, it is now a prob- em of the whole Louisiana sugar- ane industry and must be attacked s such.

Present Status of the Borer Problem

From 1943 through 1948, the orer was considered to be under ontrol. Only nominal damage oc- urred and the problem of weeds nd excessive trash replaced the in- ect in importance. We felt certain hat the dusting program was large- y responsible for holding down the nfestation and for preventing a pread during the period. We were lso of the opinion that with a dust- ng program never would we suffer catastrophe similar to the one in 926 or even approach the severe amage of that year.

But it happened, and today we are aced with an estimated loss from orers of about $8,000,000. No one actor, but a combination of many actors is responsible for this severe amage and for the failure of the ndustry to hold the insect in check.

We are able to point out some ery definite reasons for the signifi- ant increase in borer infestation his season and the severe injury vhich has followed.

1. The mortality of overwinter- ing borers was extremely low last winter. An average of 2,800 live borers was found per acre in February in areas where borer damage usually occurs. That is by far the heaviest population of over- wintering borers we have ever observed. One field contained 8,000 per acre.
2. Early spring cultivation and stubble field breaking, delayed by unfavorable weather condi- tions, destroyed only a small number of overwintering bor- ers. A large percentage of bor- er moths emerged from cane pieces before spring work had progressed to any extent.
3. Unfavorable weather condi- tions for insecticidal applica- tions and the weedy condition of the fields prevented any first generation dusting so that the extremely heavy first gen- eration population developed unmolested.
4. There was a general spread of the large population of first generation moths into adjoin- ing cane and also an overflow into corn. Therefore, the sec- ond generation of borers was extremely heavy and wide- spread. Corn showed a heavy borer infestation for the first time in ten years.
5. Then only about one-fourth of the cane acreage sufficiently infested to justify dusting was treated with cryolite for sec- ond generation control.
6. Because of the extremely heavy population of borers and heavy growth of cane the kill from dusting in certain cases did not reduce the borer population sufficiently to prevent some damage later on. Fifteen pounds of cryolite per acre per application should have re- placed the usual 10 to 12 pounds, as shown by the results of this year's experi- ments. In addition, the rein- festation of treated areas and further spread into adjoining cane from infested corn and cane tended to reduce the bene- fits normally obtained from dusting.
7. The cane was kept in a green condition by excessive rainfall, rendering it more susceptible to borer injury by later gen- erations. Then, too, borers have remained active much later than usual.
8. The dusting program was therefore inadequate in scope and less effective than in pre- vious years, so this, together

with all of the other factors, was responsible for the heavy and widely scattered borer damage throughout the cane belt.

Outlook for 1950

From a survey of present conditions we have reason to believe that next year will likely be another heavy borer year unless mother nature blesses us with the necessary freezes this winter. Borers are more widely scattered over the cane area than perhaps at any time since 1926. The population going into hibernation is extremely heavy, and unless destroyed by unfavorable weather conditions or otherwise, there should be a sufficient number of borers present in the spring of 1950 to start a fairly large first generation in all parts of the cane belt.

Of course, no one knows just what effect weather conditions will have on the overwintering population, but we do know that we are starting off with many times more than last winter following what we referred to as a rather light borer year. Therefore, a much higher percentage could be killed off and still leave us with as many as we started off with this spring. We shall be in a much better position to make predictions after surveys in February to determine the mortality of overwintering borers.

In any event the outlook doesn't seem too bright. We would be justified in starting an educational program now to better prepare the growers to fight the insect with all available means on an industry wide basis.

Program of Control

We have set forth a combination of cultural, biological, and chemical control recommendations as a basis for a sugarcane borer control program in Louisiana in Bulletin No. 363. We still feel that this is the most logical means of attacking the problem, because it brings together the whole sugarcane area into a unified program. We propose that th various cultural control practic should be adopted on all cane farn to help destroy overwintering bore and hold the overall population the lowest possible level, and the on places where the infestation ju tifies it resort to chemical control.

Because of the unimportance the borer as a general problem ov the cane area up until this ye there has not been sufficient inte est in a broad borer control pr gram. We need a comprehensiv educational effort to teach the gro ers the pertinent facts concernir the habits and seasonal history the insect, so that they will appr ciate the importance of followir the cultural control practices as means of reducing the borer popul tion as a general thing, and the follow with additional practic when necessary. The use of insect cides is not recommended exce where they are needed. Howeve insecticidal treatment is the on means of dealing with an infest tion after it has reached potential injurious proportions.

The control program may be brie ly summarized as follows:

To Prevent Further Losses

1. *Harvest heavily infested ca as soon as possible.*
   It is well to harvest heavi infested cane without delay prevent additional losses a to allow time for breakir stubble lands while the weat er is favorable. Heavily inju ed cane continues to lose weight and sugar instead improving as does borer-fr cane.

To Decrease Number of Borers Entering Hibernation

2. *Make thorough clean-up du ing harvest.*
   The main source of borers the spring is cane pieces left the field during harvest. many fields, a sufficient amou

of cane and cane pieces is left to justify the use of a special crew behind the loader for scrapping. The amount of cane salvaged in this way will usually pay for the operation and in addition the number of borers going into hibernation will be materially reduced. It is also helpful to remove all stalks and pieces of cane from plantation roads, railroads, and about the factory and derricks.

3. *Cut cane at ground level.*
Cane should be cut at ground level or just below the ground to reduce the number of borers overwintering in cane stubbles. Cutting of cane lower to include the first joints also increases sugar production.

4. *Fall break stubble filds.*
Make a special effort to break stubble land this fall. Such a practice completely destroys all overwintering materials.

To Destroy Overwintering Borers

5. *Burn trash, cane pieces, tops, etc., thoroughly.*
Records over many years show that thorough burning reduces the number of overwintering borers by 60 to 70 percent. It is profitable to return in fields with a large amount of trash after raking and piling of unburned material.

6. *Start spring cultivation in fields heavily infested the previous year.*
Early cultivation will destroy many stages before the moths emerge.

7. *Shave summer planted cane and destroy plants.*
A very heavy borer population may be found overwintering in shoots of summer planted cane. The large acreage of summer planted cane this year warrants special attention. The best time for shaving is in February.

To Control First Generation Borers

8. *Chemical Control with cryolite.*
Dust four times at weekly intervals, beginning with the geneneral emergence of young borers. First generation dusting in a small part of a large infested area usually does not pay because of likely reinfestation from untreated cane.

9. *Cut out or rogue dead hearts.*
Rogueing is beneficial in areas with a light infestation. The use of this practice is limited because of the type and number of laborers needed for successful results.

10. *Cut out and destroy heavily infested corn.*
Quite frequently heavy first generation infestations are concentrated in rather small areas of early developing corn, from which spread may occur.

To Control Second Generation Borers

11. *Chemical Control with cryolite.*
As for first generation control, make four applications at weekly intervals, beginning with the general hatching of young borers. Smaller areas may be dusted for second generation control with less danger of reinfestation.

12. *Release Trichogramma parasites.*
Releases may still be profitable in fields where the natural parasitization is at a low level, *but parasites have never given as effective control as dusting.* The idea should be to maintain the highest possible parasite population, thereby increasing its usefulness in supporting all other control practices.

To Insure Good Stands and Healthy Plant Cane

13. *Plant borer-free cane.* Heavily bored seed cane often produces poor stands and lower yields of plant cane, especially when planted late.

It is not possible at this time to discuss the program or any of the recommendations in detail, but it may be well to point out a few things about chemical control with cryolite. Chemical control involves spending about $7.50 per acre treated, therefore is subject to more scrutiny than other recommendations.

The dusting program from 1943 through 1948 was very successful. The borer infestation was not extremely heavy and rather localized. Practically all of the acreage justifying dusting was treated during these years and no widespread damage resulted. Only a small part of the heavily infested acreas was treated in 1949 and for reasons already discussed the dusting program was not as effective.

We must control either first or second generation borers so there is a long period of time between the last application of dust and harvesting of the cane. It is therefore desirable that as much of the infested area be treated as is feasible for obtaining best results. The ultimate control at harvest-time is dependent upon the amount of injury resulting from reinfestation by later generations. Damage by third and fourth generation borers is closely related to the growth conditions of the plant. In case of normal growth, injury will be in joints above the sixth. In very green cane or stunted cane injury may be similar to that of the second generation in the first six or seven joints.

It is not a difficult matter to effectively control either the first or second generation of borers. But the proper judgment must be used in doing everything possible to prevent reinfestation. A heavy infestation in corn is certainly a distinct detrimer to a dusting program, because thes borers move into cane when the cor plants mature. Therefore, an a tempt should be made to plant cor in such fields where it will not b subject to furnishing borers for ir festing a large part of the car acreage. This is the first year sinc dusting was initiated that corn ha become heavily infested. This wa probably due to an overflow of a extremely heavy first generatio population which may not have o curred had a reasonable amount c first generation dusting been don

Our research program this yea has yielded several significant fin ings:

1. The insecticide, Ryania, shov ed an outstanding residual e fectiveness as compared wit cryolite and in small plo showed considerably less pos treatment injury.
2. Fifteen pounds of cryolite pe acre per application is far su perior to ten pounds in plan application under conditions c heavy borer populations ar thick growths of cane.
3. Although third generation co trol was found to be profitab by hand-gun treatment und some conditions, it is almo impossible to get sufficie dust into the cane by airplan at this time of year.
4. Since a spray concentrate c Ryania is more easily prepare than one of cryolite, we ma be in a better position to u concentrated sprays instead c dusts. Such sprays have bee found to offer many adva tages.

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TIPS ON BORER CONTROL

The Letter Below Has Been Mailed to the Louisiana Cane Farmers By the County Agents

ear Sugar Cane Farmer:

The sugar cane borer has returned n full force and severe damage has een caused over a large acreage.

If we have another mild winter, large number of borers will live nrough the winter and become a erious threat to the crop next year.

The borer has reduced your pro- ts by lowering yields, reducing su- rose, causing eyes to sprout, tops fall over, stalks to break in two, ncreasing harvesting costs and per- itting a high infection of red rot iseases, and thus causing poor ands.

The number of over-wintering rers must be reduced and you can this by thoroughly carrying out ie following practices:

1. Clean harvest is important. e know that the greatest source borers in the spring is from eces left in the fields. Scrapping hind the loader is necessary to re- ice the number of pieces of cane which the borer hibernates. This rapping job ought to be carried t to the roads, railroads, around e factory and derrick.

2. All trash cane pieces, tops and grasses should be gathered and burned. Burning reduces the number of over-wintering borers by 60 to 70 percent. A great amount of trash can be raked up and burned, and unburned material should be *reburned.*

3. Make a special effort to break all stubble this fall. This kind of practice will completely destroy over-wintering material. Also take into consideration where your corn will be planted so as to lessen the dangers of infestation from infested corn.

4. Large numbers of borers may over-winter in shoots of summer plant cane. To destroy these borers shave off these plants in late February and burn them.

5. Make plans now to carry out a dusting program next year where infestation warrants such action.

We shall be glad to assist you in any way possible with this serious problem. These recommendations are based on the work of Mr. A. L. Dugas, Associate Entomologist, L.S.U. Agricultural Experiment Station.

THE MARKET

The Following Letter by M. Golodetz & Co., Dated December 12th Gives a Clear Picture of World Conditions in the Sugar Market.

The Cuban Minister of Agricul- re has announced that, as a result favorable weather conditions, inding of the 1950 crop in Cuba ay start on January 1st and that a gar production of five million ng tons can be expected, compared the previous estimate of 4,800,- ns. The 1949 crop amounted to 145,000 tons.

Increased demand for Cuban orld raws of the 1950 crop has led advancing prices and a general firm market tendency. Sales of Cuban raws for shipment to Europe during the first quarter of 1950 have taken place last week at 4.25¢ per lb. F.O.B. Only limited quantities of raws are now available at 4.30¢ for shipment not earlier than March. Cuban refined sugar for shipment February/March is quoted at 5.45¢ F.O.B., representing a refining margin of $1.15 per 100 lbs. The firm tendency of the market has been accentuated by reports from

Paris about an impending private barter deal involving the delivery of 20,000 tons of rubber from Indo-China to the United States against 60,000 tons of sugar to be shipped from Cuba to Metropolitan France.

The selling policy of the Cuban producers for "world" free sugar is governed by certain caution due to the fact that the tentative "world" free quota is not expected to be established until some time in January. The definite "world" quota, naturally, will be fixed much later, after actual crop figures are known and when the quota to fill the U.S.A. requirements for Cuban sugar can be established reliably.

Furthermore, it should be borne in mind that the Cuban producer receives certificates for each separate quota according to the provisionally established percentages based on actually produced sugar. The Cuban producers are, therefore, reluctant to enter commitments for "world" sugar, even at the present enhanced prices, until they will be able to form a more accurate appraisal of the total of "world" sugar quota available next year. Opinion has been expressed that such quota will not exceed 800,000 tons compared to the initial quota of 650,000 tons in 1949, later on increased to 800,000. Sales of Cuban world sugar of the 1950 crop thus far made are estimated at 250,000 tons.

As a sequel of the negotiations between the British government and the West Indies sugar producers, discussions have taken place in London between the Ministry of Food and the British Commonwealth producers regarding the undertaking of the U.K. government to buy from the Dominions and Colonies all the sugar they can export in the future. The West Indies producers asked for a 10-year contract at a fixed price to enable them to expand plantings with a view to satisfying the major part of the needs of the British market. Whilst agreeing to the need of a long-term contract, th Ministry declined to be committed t a fixed price for as long as 10 years

As distinct from the West Indie producers' insistence of a long-ter contract, Australia and South Afric seem to attach little importance t the requirement of a fixed price. N doubt the general desire is for suc cess of the pending negotiations i order to make Britain more inde pendent from dollar imports of su gar. On the other hand, the Bri ish government gives preference t the price question being reviewe from time to time so that the pric of Empire sugars be brought int relation to world price levels.

Domestic consumption of sugar i the United Kingdom for the yea ending August 31, 1950, is estimate at 2,050,000 metric tons of ra value, compared to 2,100,000 for th year ending August 31, 1949. Th consumption of Canada is estimate at 650,000 tons. The requiremen of the United Kingdom, Britis Dominions and Mandated Territori supplied under U.K. arrangemen for the year ending August, 194 were 3,227,000 tons against tot supplies of 2,279,000 tons availab during this period from British Em pire sources. Therefore, 948,0 tons were required to be import from free markets.

In France the sugar producers e pressed pessimistic views regardi the current output. The yield sugar turns out to be low and, ta ing into account the supplies sugar beets originally assigned the distilleries, the producers belie that the 1949/1950 crop will hard exceed 800,000 tons, as compared 900,000 tons estimated at the sta of the campaign. French Coloni production is estimated at 190,0 tons, of which 150,000 tons can exported to France and French M rocco. Considering consumption r quirements of France, Algeria a Tunis, the import needs of Fran may exceed 100,000 tons.

This year's beet area in Holland as 67,464 hectares, compared to ,737 last year. The total expected op in raw sugar value is estimated 0,000 tons, compared to 285,000 ns in 1948.

News received from our friends Java indicate that actual crop re-lts this year are lagging behind e original expectation of 300,000 ns which were based on increased antings in 1948 and repairs made the sugar factories. Due to cane es, acts of terrorists and intimi-tion of labor, only 230,000 tons ere actually produced, of which ,000 tons were sold to the British inistry of Food last May and 8000 ns shipped to Middle and Near st countries during August/Octo-r. Present stocks of undisposed gar being barely sufficient to meet mestic requirements, rationing had ain to be introduced. Cane plant-gs to supply 35 factories which e proposed to operate next year ow a preliminary estimate of 400/ 0,000 tons, however, actual pro-ction will largely depend on gen-eral conditions in the Island. eanwhile it is intended to reserve 0,000 tons of the 1950 crop for mestic consumption, which would dicate a tentative estimate of about 0,000 tons available for export.

REA SUGAR QUOTAS

(Continued from page 99)

mestic areas are the amounts own in the act.

All quotas in terms of short tons, w value, are shown in detail in the llowing.

IC QUOTAS, PRORATION OF PHILIPPINE DEFICIT AND ADJUSTED QUOTAS, 1950

(Short tons, raw value)

oduction area	Basic Quota	Proration of deficit in quota for Philippines	Adjusted quota
estic beet sugar	1,800,000		1,800,000
iland cane sugar	500,000		500,000
aii[1]	1,052,000		1,052,000
to Rico[1]	910,000		910,000
n Islands	6,000		6,000
ppines[1]	982,000[3]	(300,000)	682,000
[1]	2,219,400	285,000	2,504,400
r foreign countries[2]	30,600	15,000	45,600
Total	7,500,000		7,500,000

[1] The following quantities may be entered as direct-consumption sugar: Hawaii, 29,610 tons; Puerto Rico, 126,033; Philippines 59,920; Cuba, 375,000.

[2] Prorations of basic quota may be filled with direct-consumption or raw sugar. Prorations of Philippine deficit may be filled with raw sugar only.

[3] Regardless of deficit proration, by reason of Sec. 204(c) of the act the Republic of the Philippines retains its basic quota.

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THE
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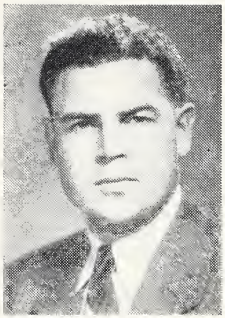

THE BLACKSTRAP MOLASSES MARKETING PROGRAM IN LOUISIANA

Introductory Statements

by

Roy B. Johnson, Coordinator

This is the first of a series of informative articles directed to those persons who have an interest in the sugarcane industry of Louisiana. These articles will appear in subsequent issues of the Sugar Bulletin and will deal primarily with the progress of the Blackstrap Molasses Marketing Program. The program is being initiated with Roy Johnson as coordinator acting under the supervision and guidance of Honorable W. E. Anderson, Commissioner of Agriculture and members of the American Sugar Cane League.

It is a generally accepted fact that we can and are producing some agricultural products at a much faster rate than these products can effectively be distributed and orderly marketed. However, the picture is not as dark as it appears on the surface. We have only to stop and turn back the pages a few decades and we arrive at a time when production was a considerable problem. But through years of research and experimentation devoted to finding ways to produce bigger and better quality crops on smaller plots of land and on soils generally considered unproductive, the job of producing in abundance has been lessened. Is it unreasonable then to assume that a solution to some of our marketing problems may also be reached by similar concerted effort? Until recently relatively little research had been devoted to commodity distribution. Now the marketing problem has reached such magnitude that it can be recognized by the most casual observer. Hence we have definite and concrete marketing programs.

The Blackstrap Molasses Marketing program, in accordance with the Agricultural Marketing Act of 1946 has as its principal objective the efficient marketing of Louisiana blackstrap. To achieve such objective the following are some of the approaches that will be used:

(1) The collection and dissemination of current market information and statistics on blackstrap.

(2) To investigate the possibilities of expanding present markets and uses of blackstrap and developing new ones.

(3) Research to determine the best methods of storing, transporting and distributing blackstrap.

With the cooperation of each individual directly concerned with the marketing program we hope to eventually channel the entire crop of Louisiana blackstrap to a ready market.

SOME "MUSTS" IN FIELD PRODUCTION OF SUGARCANE IN LOUISIANA

I. L. Forbes, Assistant Director
Louisiana Agricultural Experiment Station

Increased unit production is a "must" in the Louisiana sugarcane industry. This is an old argument, but it is more imperative today than ever before. With the extremely high costs of everything, including land, labor, management, machinery, and other items necessary for producing a ton or other unit of sugarcane, contrasted with the low price of the finished product, sugar, greater efficiency in production or else bankruptcy are the only alternatives.

Fortunately, sicence, through research, has the answers to many of the serious problems of production which face the sugarcane farmer in Louisiana today. Admittedly, some of these research findings are used generally by most growers; but the low average yields as contrasted with high yields in isolated cases of superior farming is proof that greater efficiency is a definite possibility. Let us consider, briefly, some of these problems and the scientific information available to solve the problems.

Drainage: Everyone who has grown sugarcane in Louisiana knows that good drainage is a "must." A number of years ago the drainage situation was, with some conspicuous exceptions, in fairly good shape. Canals and smaller ditches and drains were religiously kept open. Due to shortage of labor and other reasons known to all, during the two world wars the drainage lay-out on plantations and farms was sorely neglected; and, in large measure, this condition of stopped-up drainage-ways still obtains. In addition, most of the cane cuts, no doubt, are sway-backed or sloping toward the center, which makes for even less possibility of adequate drainage. The research of Saveson, in particular in recent years, has shown what great benefits can be obtained from out-crowning and good drainage.

Land preparation: Planting sugarcane in a poorly prepared seed-bed initiates a condition of soil tilth and poor drainage which cannot possibly be overcome by even good farming during the two or three years of that particular crop cycle. The statement is made generally by the best farmers that a superior seed-bed accounts for 50 per cent or more of the required cultivation of a sugarcane crop. This is no exaggeration. Research workers have recommended and better farmers have known for a long time about this, too, is a "must" in sugarcane production.

Selection of varieties: The sugarcane breeding program for the Louisiana industry has been highly successful since it was established. Many good varieties have been developed and used with great success by the Industry. Better varieties is ever the goal of the scientists as well as the growers. There are some areas at present that are in dire need of better varieties, and additional effort is now being put forth by the sugarcane breeders in an attempt to remedy this situation. But in general the scientists do have specific varietal recommendations for the different sections of the sugar "belt" and for the different soil types. These recommendations which are thoroughly reliable are still not used by growers to their greatest benefit. Much is yet to be accepted and judiciously used by the Industry if the potentialities of the al-

(Continued on Page 124)

CROP NEWS BY PARISHES

from

COUNTY AGENTS

The sugar mills in all sections of the sugar district were finished, or are just about to complete their grinding operations when we asked our friends, the County Agents, to send in some information for this issue of THE SUGAR BULLETIN. From the reports received it appears that the cane tonnage has been generally disappointing and that the cane borer has returned as a major menace to the welfare of the industry.

Iberia Parish. The report mailed by W. S. Williams, county agent of Iberia Parish, is dated January 6th and is as follows:

The grinding campaign in Iberia Parish is expected to be completed on Tuesday, January 10, 1950. All mills of the Parish have ceased operation with the exception of the Loisel Sugar Company, of Jeanerette. This mill is expected to finish on January 10th.

The five mills of the Parish will grind approximately 481,000 tons of cane this season. Last season these same five mills ground a total of 471,000 tons of cane. However, another mill, Orange Grove, operated in 1948 grinding approximately 29,000 tons of cane that year.

For the season the canes have averaged about 17 tons to the acre. The average sucrose has been approximately 12.36 per cent while the average purity has been around 76.6 per cent. Sugar production has averaged approximately 165.7 pounds to the ton.

The total tons of cane produced by Iberia Parish farmers in 1949 is expected to be approximately 591,000 tons compared to 599,000 tons produced in 1948."

Mr. Williams estimates that the cane borer reduced the total cane tonnage in Iberia Parish about 15 per cent, or approximately 89,000 tons.

Assumption Parish. The grinding campaign in Assumption Parish was completed on December 29th and E. J. Lousteau, County Agent, reported on January 9th that the six mills in his district ground approximately 652,425 tons of cane. Last season 626,600 tons of cane were milled in the Parish.

This season's cane production has averaged 22 tons to the acre with an average sucrose of 12.3 and a purity of 76.5. Sugar production has averaged about 160 pounds per ton of cane.

Mr. Lousteau estimates that the cane borer reduced the cane crop in Assumption Parish about 15% which means, of course, that this pest cost the farmers in his district about 97,000 tons of cane.

Lafourche Parish. January 2nd is given by C. J. Arceneaux as the day on which the grinding campaign was completed in his district. The six mills operating this season in Lafourche Parish ground 729,300 tons of cane as compared with a grinding of 811,500 tons ground in 1948. Tonnage production averaged about 17 tons to the acre.

The canes averaged about 12.1 in sucrose and 76.75 in purity for the season with a sugar production of approximately 165 pounds per ton of cane.

A fifteen per cent reduction in the crop due to borer damage is also reported by Mr. Arceneaux indicating that the cane farmers in Lafourche Parish lost about 109,000 tons of cane to the borer.

950 PRODUCTION AND CULTIVATION MINIMUM WAGE RATES FOR LOUISIANA

JNITED STATES DEPARTMENT OF AGRICULTURE

Production and Marketing Administration

TITLE 7—AGRICULTURE

Chapter VIII—Production and Marketing Administration (Sugar Branch) Department of Agriculture

Subchapter H—Determination of Wage Rates

(Sugar Determination 864.2)

Part 864—Sugarcane (Production and Cultivation); Louisiana Calendar Year 1950

Pursuant to the provisions of section 301 (c) (1) of the Sugar Act of 1948 (herein referred to as "act"), after investigation, and consideration of the evidence obtained at the public hearing held in Thibodaux, Louisiana, on July 15, 1949, the following determination is hereby issued:

§ 864.2 *Fair and reasonable wage rates for persons employed in the production and cultivation of sugarcane in Louisiana during the calendar year* 1950—(a) *Wage requirements.* The requirements of section 301 (c) (1) of the act shall be deemed to have been met with respect to the production and cultivation of sugarcane in Louisiana during the calendar year 1950, if the producer complies with the following:

(1) *Wage rates.* All persons employed on the farm in the production and cultivation of sugarcane shall have been paid in full for all such work and shall have been paid wages in cash therefor at rates as agreed upon between the producer and the laborer but, after the date of issuance of this determination, not less than the following:

(i) *Basic wage rates and adjustments for sugar price changes.* When the average price of raw sugar (duty paid basis, delivered) is within the base price range of $5.60 to $6.00, inclusive, per one hundred pounds for the two weeks' period immediately preceding the two weeks' period during which the work is performed, and for each full 10 cents that such price shall average more than $6.00 or less than $5.60, the basic day wage rates in the accompanying table shall be applicable:

(ii) *Hourly rates.* Where workers are employed on an hourly basis, the basic wage rate per hour shall be determined by dividing the applicable basic day wage rate in subdivision (i) of this subparagraph by 9 in the case of adult workers,

Table of Raw Sugar Price Ranges and Applicable Basic Wage Rates[1]

Operations	Price ranges—2 weeks' average price of 100 pounds raw sugar (duty paid basis, delivered)						
least	$5.201	$5.301	$5.401	$5.501	$6.100	$6.200	$6.300
it not more than	5.300	5.400	5.500	6.099	6.199	6.299	6.399
r all work except as otherwise specified:				Base price range $5.60–$6.00			
Adult females, per 9-hour day	$2.25	$2.30	$2.35	$2.40	$2.45	$2.50	$2.55
Adult males, per 9-hour day	2.75	2.80	2.85	2.90	2.95	3.00	3.05
actor drivers, per 9-hour day	3.50	3.55	3.60	3.65	3.70	3.75	3.80
amsters, per 9-hour day	2.75	2.80	2.85	2.90	2.95	3.00	3.05
orkers between 14 and 16 years of age, per 8-hour day	2.05	2.10	2.15	2.20	2.25	2.30	2.35

[1] For each successive full 10-cent price change above $6.30 or below $5.30, the basic wage rates shall be increased or creased, correspondingly, by the same amounts as shown above for each full 10-cent price change.

and by 8 in the case of workers between 14 and 16 years of age.

(iii) *Piecework rates.* The piecework rate for any class of work shall be that agreed upon between the producer and worker: *Provided,* That the hourly rate of earnings for each worker for the time involved for each separate unit of work for which a piecework rate is agreed upon shall be not less than the applicable hourly rate specified in subdivision (ii) of this subparagraph.

(iv) *Determination of average sugar prices.* The two weeks' average price of raw sugar shall be determined by taking the simple average of the daily "spot" quotations of 96° raw sugar (duty paid basis, delivered) of the Louisiana Sugar Exchange, Inc., adjusted to a one hundred pound basis, except that if the Director of the Sugar Branch determines that for any two weeks' period such average price does not reflect the true market value of raw sugar, because of inadequate volume or other factors, the Director may designate the average price to be effective under this determination. For the purpose of this determination the average price of raw sugar prevailing during the period from December 16 through December 29, 1949, shall determine the wage rates from January 1 through January 12, 1950, and thereafter the wage rates in successive two weeks' work periods shall be determined by the average price of raw sugar prevailing in the immediately preceding two weeks' period.

(2) *Perquisites.* In addition to the foregoing, the producer shall furnish to the laborer, without charge, the perquisites customarily furnished by him, such as a habitable house, medical attention, and similar items.

(b) *Subterfuge.* The producer shall not reduce the wage rates to laborers below those determined herein through any subterfuge o device whatsoever.

(c) *Claim for unpaid wages.* An person who believes he has not bee paid in accordance with this deter mination may file a wage claim wit the local County Production an Marketing Administration Commit tee against the producer on whos farm the work was performed. Suc claim must be filed within two year from the date the work with respec to which the claim is made was per formed. Detailed instructions an wage claim forms are available a the office of the local PMA Commit tee. Upon receipt of a wage clair the PMA Committee shall thereupo notify the producer against whor the claim is made concerning th representation made by the laborer and, after making such investiga tion as it deems necessary, notif the producer and laborer in writin of its recommendation for settle ment of the claim. If either part is not satisfied with the recom mended settlement, an appeal ma be made to the State PMA Com mittee, University Station, Bato Rouge, Louisiana, which shall like wise consider the facts and notif the producer and laborer in writin of its recommendation for settle ment of the claim. If the recommer dation of the State PMA Committe is not acceptable, either party ma file an appeal with the Director c the Sugar Branch, Production an Marketing Administration, U. S. De partment of Agriculture, Washing ton, D. C. All such appeals shall b filed within 15 days after receip of the recommended settlement fro the respective committee, otherwis such recommended settlements wi be applied in making payments un der the act. If a claim is appeale to the Director of the Sugar Branch his decision shall be binding on a parties insofar as payments unde the act are concerned.

Statement of Bases and Considerations

(a) *General.* The foregoing determination provides fair and reasonable wage rates to be paid by producers to persons employed in the production and cultivation of sugarcane in Louisiana during the calendar year 1950. It prescribes the minimum requirements with respect to wages which must be met as one of the conditions for payment under the act. In this statement, the foregoing determination, as well as determinations for prior years, will be referred to as "wage determination", identified by the calendar year for which effective.

(b) *Requirements of the act and standards employed.* In determining fair and reasonable wage rates, the act requires that a public hearing be held, that investigations be made, and that consideration be given to (1) the standards formerly established by the Secretary of Agriculture under the Agricultural Adjustment Act, as amended, and (2) the differences in conditions among various sugar producing areas.

A public hearing was held in Thibodaux, Louisiana, on July 15, 1949, at which time interested persons presented testimony with respect to fair and reasonable wage rates for production and cultivation work during the calendar year 1950. In addition, investigations have been made of the conditions affecting wage rates in Louisiana. In this determination consideration has been given to testimony presented at the hearing and to the information resulting from investigations. The primary factors which have been considered are (1) prices of sugar and by-products; (2) income from sugarcane; (3) cost of production; (4) cost of living; and (5) relationship of labor cost to total cost. Other economic influences also have been considered.

(c) *Background.* Determinations of fair and reasonable wage rates for work in production and cultivation of sugarcane in Louisiana have been issued for each calendar year beginning with 1938. In the 1938 and 1939 wage determinations specific time rates were provided for adult males and adult females. Beginning with the 1940 wage determination coverage was extended to tractor drivers, teamsters and workers between 14 and 16 years of age.

The 1938 wage determination increased basic adult male wages for production and cultivation work 20 cents per day over those of the previous year. An increase in producer income at the same time permitted the maintenance of the customary relationship of wages to income that had existed in prior years. The basic wage rates were not changed during the years from 1938 to 1941 and the wage income relationship remained relatively constant. Beginning in 1942, the basic wage rates were increased 30 cents per day and have been increased in varying amounts each subsequent year until 1948. Throughout the period, wage rates have been established primarily on the basis of the historical wage-income relationship, though in more recent years alterations have been made to give recognition to significant changes which have occurred in other factors customarily considered in establishing wage rates. Since the base period 1938-40 the weighted average basic time rates for production and cultivation work have been increased from 13.4 cents per hour to 33.0 cents in 1948, an increase of 146.3 percent.

In order that the wage rates might be more responsive to significant changes in sugar prices and producer income than was possible under the fixed wage levels of preceding determinations, there was included in 1949 wage determina-

tion a modified wage-price escalator scale. A provision was made that basic time and piecework rates for a two weeks' work period be increased or decreased for each full 10 cents that the average price of 96° raw sugar (duty paid basis, delivered) was more than $6.25 or less than $5.60 per one hundred pounds for the two weeks' period immediately preceding the two weeks' period during which the work was performed. The amount of increase or decrease was $0.050 per 9-hour day.

(d) 1950 *wage determination.* The 1950 wage determination continues unchanged the basic wage rates of the 1949 wage determination, except that the upper limit of the base price range of the wage escalator has been lowered from $6.25 to $6.00 per one hundred pounds of raw sugar. The change conforms to recommendations made at the public hearing and will permit increments in the day wage rates at lower levels of raw sugar prices than in the 1949 wage determination. The amount of wage increase or decrease for each full 10 cents change in the average raw sugar price above $6.00 or below $5.60 per 100 pounds, respectively, is the same as in the 1949 determination, i.e., $0.050 per 9-hour day. For convenience this wage determination contains a complete table of day rates for average raw sugar prices between $5.201 and $6.399 per one hundred pounds. In this wage determination, average raw sugar prices are to be based on the daily "spot" quotations of the Louisiana Sugar Exchange, Inc., the successor to the Louisiana Sugar and Rice Exchange and the Cane Products Trade Association Exchange whose quotations were used in the 1949 determination.

For the first time the 1950 wage determination contains a provision setting forth the procedure which should be followed in filing a wage claim by a person who believes h has not been paid in accordan with this determination. While wa claim procedure has been effecti in prior years, its inclusion in th determination will make such info mation generally available to all pr ducers and laborers.

An examination of the sever factors considered in wage determ nations indicates a general stabili during the greater part of the ca endar year 1949. While blackstr molasses prices reached lower leve than those prevailing in the fall 1949, the increased price of ra sugar together with the revision the sugarcane pricing formula ind cates an improvement in the gro income per ton of sugarcane sol However, if any significant chan in producer income should o cur, such changes will be reflect in higher or lower wage rat through the wage-price escalat provided in the determinatio Prices paid by farmers for co modities used in production a costs of living for sugarcane wor ers have declined somewhat sin late 1948, although in more rece months there has been less fluctu tion in these factors and a slig increase has occurred in food cost The absence of significant chang during the past year in factors co sidered affords a reasonable bas to continue the basic wage rates u changed. In addition to the bas wage rates and payments for piec work, workers must be furnishe without charge, the customary pe quisites, such as a habitable hous medical attention, and similar item

Accordingly, I hereby find a conclude that the foregoing wa determination will effectuate t wage provisions of the Sugar Act 1948.

(Sec. 403, 61 Stat. 932; 7 U. S. Sup., 1153. Interprets or appli sec. 301, 61 Stat. 929; 7 U. S. Sup. 1131).

Issued this 2d day of December, 49.

eal) A. J. LOVELAND,
Acting
Secretary of Agriculture.

THE MARKETS

January 13, 1950

No spot sales of Louisiana raws ve been recorded since our last ort a month ago and the local rket has followed the New York ce, less the freight differential, oughout the period. The Louisi- crop has moved in a very or- ly fashion under various average ce contracts and apparently both buyers and sellers of Louisiana vs have enjoyed an amicable sea- .

Sales of Louisiana blackstrap, on other hand, have continued to eratic with quotations fluctuating ween 5½ cents per gallon in bulk b. plantation and 5⅞ cents a lon in bulk f.o.b. plantation, and s market is still upset. The com- ition this season has been ex- mely tough.

Official weekly averages quoted the Louisiana Sugar Exchange, ., since the start of the pricing iod have been as follows:

ek ending October 13, 1949
Raws 5.95. Blackstrap 5 cents.

ek ending October 20, 1949
Raws 5.99. Blackstrap 5.10 cents.

ek ending October 27, 1949
Raws 6.03. Blackstrap 5.425 cents.

ek ending November 3, 1949
Raws 5.98. Blackstrap 5.625 cents.

ek ending November 10, 1949
Raws 5.94. Blackstrap 5.781 cents.

ek ending November 17, 1949
Raws 5.87. Blackstrap 5.875 cents.

ek ending November 24, 1949
Raws 5.85. Blackstrap 5.828 cents.

George M. Murrell

An unfortunate loss was sustained by the sugar producing community of Louisiana and by the American Sugar Cane League on January 11th, 1950 in the death of Mr. Geo. M. Murrell of Forest Home Plantation in the Parish of Iberville.

Mr. Murrell was a scion of an old and distinguished sugar planting family in this State which had its roots years ago in the commonwealth of Virginia which has sent so many of its sons to enrich the bloodstreams of sister communities.

At the time of his death Mr. Geo. Murrell had his several plantations in Iberville Parish leased to various lessees, his health for the past year or so having been too bad to permit him much personal activity.

Both his father, Mr. Louis Murrell, and his uncle, Mr. Ross Murrell, who preceded him in the ownership and operation of the Louisiana sugar properties died several years ago. He leaves a widow and two sons.

Week ending December 1, 1949
Raws 5.77. Blackstrap 5.781 cents.

Week ending December 8, 1949
Raws 5.72. Blackstrap 5.788 cents.

Week ending December 15, 1949
Raws 5.73. Blackstrap 5.758 cents.

Week ending December 22, 1949
Raws 5.73. Blackstrap 5.825 cents.

Week ending December 29, 1949
Raws 5.70. Blackstrap 5.781 cents.

Week ending January 5, 1950
Raws 5.64. Blackstrap 5.703 cents.

Week ending January 12, 1950
Raws 5.69. Blackstrap 5.50 cents.

The average price for the first fourteen weeks of the season for raw sugar is 5.828 and the average price of Blackstrap for the same period is 5.626.

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New Orleans 2, La.

SOME "MUSTS"

(Continued from Page 117)

ways currently available variet are to be realized.

Proper planting: Whether summer-plant or plant in the f depends upon several factors, su as soil type, variety to be used, cation within the sugar "belt" w reference to temperatures main and past experience in the local as to dates of planting. The de of planting is a very import point for consideration. In an fort to make doubly certain that t stubble crops will be deep enou in the ground, it is obvious th many growers cover the seed pie too deep. This often results in t seed being lower in the drill th middles or drains between the ro resulting in cane pieces lying water or water-logged soil duri periods of various lengths duri the dormant winter months. Su practices should be carefully gua ed against. Two or three inches soil is usually amply sufficient protect against winter freezes. Ho ever, as Stubbs reported, care m be exercised to assure that the se pieces are at least six inches abo the bottom of the quarter drai Along with proper planting and lection of varieties goes the obvi necessity of having selected mosa free seed, borer-free seed, and o erwise healthy and vigorous sta of cane for seed purposes.

Cultivation: It is obvious to ev the casual observer that cultivati of the growing sugarcane crop not what is known to be desir With the present day equipment a speed of operations, quality is s rificed for quantity. Untold dama is done to growing crops as a res of the careless root pruning that inevitable with the tractor-drav heavy equipment; the double-cho pers in particular. The fact h long since been demonstrated a proven by large-scale applicati that shallow cultivation to preve

h root pruning is all-important. ch shallow cultivation was prac- ed generally for many years by greater portion of the Louisiana gar industry; and all who did h good farming know the bene- s accruing therefrom; but here in, because of shortage of labor l high prices of everything the wer had to buy, as contrasted h low prices of what he had to , he let himself drift into care- sness with regard to proper meth- of cultivation, to his great detri- nt, and has not, except in isolated es, gone back to what he knows be the better methods of sugar- e cultivation. Better cultivation, ng the same implements, can be l through the exercise of greater e on the part of the operator.

Weeds: Many research workers of the opinion that the severe ed problem, particularly Johnson ss, and the conditions of poor inage which prevail too general- are running neck and neck for number one problem in sugar- e production in Louisiana. But e again, the research scientists, ether with many of the better wers, have worked out a solution the weed problem. The story of trol of Johnson grass by fallow wing is too well known to need eating here. But the almost azing results which have been ained with chemical control of s weed have opened up a new izon among the possibilities of reasing sugar production. Recom- ndations are available from the entists working on these prob- s which will pay big dividends they are carefully and judicially d in cooperation with the accept- fallow-plowing methods for con- l of Johnson grass. Large grow- , in particular, with badly infest- sugarcane lands would do well to efully consider employing trained sonnel for the purpose of using ely these chemical controls. This earch work is in its infancy, so

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to speak; and despite the fact th great strides have been made practical control of Johnson gra by chemicals a great deal of search is still necessary bef blanket recommendations can made for their use. Therefore, repeat, technical assistance wo doubtless repay the farmer ma fold for the money expended to c trol weeds by such methods.

Insect control: According to search entomologists, the sugarca borer occurred more generally o the sugar "belt" and did greater da age during the crop season just p than at any time since 1926. T is a pest for which control measu have been worked out and have b used for years by growers in most heavily infested areas. H ever, many planters have taken chance on little or else light bo infestations year in and year out a have not made necessary plans controlling borers by dusting w chemicals in the event such me ures become necessary in a par ular growing season. Consequen they expose themselves to perio losses such as have occurred in past year. Actually there seems be no sound business basis for t ing such chances. Sugarcane sects can be controlled in the Lou ana Sugar Industry if recommen tions are properly followed.

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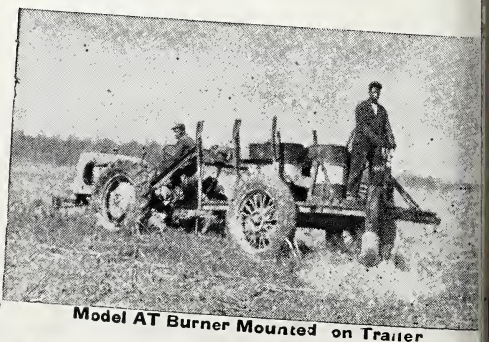
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Disease control: Sugarcane diseases are generally credited with having been responsible for the failure of the industry in Louisiana during the 1920's. The major diseases in Louisiana have been brought under control since that catastrophe mainly through the development and use of resistant varieties. However, this breeding program is a never-ending process since the disease-producing organisms, such as the red rot fungus, change, too, and varieties such as Co. 290, to mention only one, become susceptible and must be replaced. Where such varieties must be continued in certain areas because of lack of better ones being available to replace them, certain special treatment can be resorted to that will reduce damage from diseases. With Co. 290 in the Bayou Teche area, for example, rouguing seed plots to keep seed cane relatively free from mosaic disease and following recommended planting dates and use of borer-free and otherwise healthy seed to control red rot have paid big dividends.

In summary, it might be stated with finality that *no one practice* such as fertilization, weed control, insect and disease control, better varieties, good drainage, or better seed-bed preparation and improved methods of cultivation *is in itself a panacea* for the sugarcane industry of Louisiana. On the contrary, all are important and interdependent. Increased efficiency across the board is a "must" if Louisiana growers are to survive under the rigid price controls of the finished product, sugar. And under the impending acreage allotments, this bold statement looms even more convincing. The hour is not yet too late to increase farming efficiency in the Louisiana Sugar Industry.

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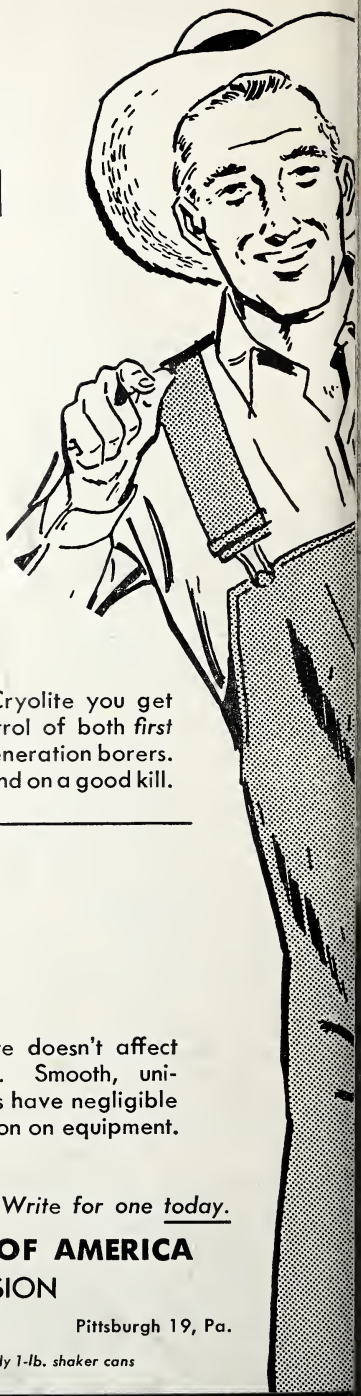

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MARCEL J. VOORHIES, Editor

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IN WASHINGTON WITH C. J. BOURG

The Fertilizer Situation

American Cyanamid Company
New York City
December 22, 1949

r. C. J. Bourg
merican Sugar Cane League
Vashington, D. C.

ear Mr. Bourg:

I was very glad to receive your tter of December 14th and am ppy to be able to advise that I e nothing in the picture, at the oment, which will prohibit our ing through on a 100 per cent sis with the commitments which e now have on our books cover- g Aero Cyanamid, Granular and eroprills, Ammonium Nitrate Fer- lizer for your constituents in the uisiana Sugar Area.

With so much additional nitrogen rtilizer available this season, we ve been greatly relieved of the rain to supply. The reduction in e cotton acreage has also tended ward this end. As a matter of ct, we have already received a ir number of requests from our uisiana customers to cancel their yanamid requirements for the cur- nt season which are covered by ir five-year contracts. This, of urse, means that they were able secure their requirements else- here at a little better price than e were able to make in view of our ng freight haul.

The greatest problem we are fac- g later this season will come dur- g the active shipping period, namely, January, February and March, when everybody will be call- ing on us for prompt and immediate shipment. As you know, due to the many uncertainties in the over-all economic situation so far this season, it has been very difficut to move fertilizers or any other farm supplies to the consumers. They have all been holding back looking for price breaks. Consequently, we are going to be called upon to supply in much greater volume than we are equipped for and *delays are inevitable. It would help a great deal if you could warn your people of this condition and urge them to take their material as early as possible.*

You, no doubt, know that we recently revised our prices on both Aero Cyanamid, Granular and Aeroprills, Ammonium Nitrate Fertilizer. The former is now quoted at $48.00 per ton, plus freight from Niagara Falls, Ontario, to destination, and the latter at $57.50 per ton, plus freight from Port Robinson, Ontario, to destination.

Taking this opportunity to extend my warmest personal regards for a very happy and pleasant holiday season and looking forward to seeing you before very much longer, I am

Very truly yours,
"JAME GORMAN"
Manager, Nitrogen Dept.

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SUGAR QUOTAS AND DEFICITS FOR 1950

UNITED STATES DEPARTMENT OF AGRICULTURE
Production and Marketing Administration

TITLE 7—AGRICULTURE
Chaper VIII—Production and Marketing Administration (Sugar Branch), Department of Agriculture.
Subchapter B—Sugar Requirements and Quotas
(Sugar Reg. 813)

Part 813—Sugar Quotas and Prorations of Quota Deficits
Quotas and Deficits, 1950

By virtue of the authority vested in the Secretary of Agriculture by the Sugar Act of 1948 (61 Stat. 922) and the Administrative Procedure Act (60 Stat. 237), the regulations of this part are hereby made, prescribed and published to be in force and effect for the calendar year 1950 or until amended or superseded by regulations hereafter made during the calendar year 1950.

Sec.

813.11 Basic quotas for domestic areas.
813.12 Basic quotas for other areas.
813.13 Determination and proration of area deficits.
813.14 Proration of quota for foreign countries other than Cuba and the Republic of the Philippines.
813.15 Direct-consumption portion of quotas or prorations.
813.16 Liquid sugar quotas.
813.17 Restrictions on marketing and shipment.
813.18 Inapplicability of quota regulations.

Authority: Secs. 813.11 to 813.18 issued under Secs. 403, 61 Stat. 932; 7 U. S. C. Sup. 1153. Interprets or applies Secs. 202, 204, 207, 208, 209, 210, and 212, 61 Stat. 924, 925, 927, 928, 929; 7 U. S. C. Sup. 1112, 1114, 1117, 1118, 1119, 1120, 1122.

Basis and purpose. The sugar quotas set forth below have been established pursuant to section 202 of the Sugar Act of 1948 (hereinafter called "the act") in terms of short tons of sugar, raw value, equal to the quantity determined by the Secretary of Agriculture to be needed to meet the requirements of consumers in the continental United States for the calendar year 1950. The purpose of Sugar Regulation 813 is to establish quotas representing the amount of sugar which each producing area may supply to the continen United States market during t calendar year 1950. Prior to the suance of this regulation, notice w given (14 F. R. 6719) that the S retary of Agriculture was prep ing, among other things, to est lish sugar quotas for the calend year 1950 and to determine whet any domestic area, the Republic the Philippines, or Cuba would unable to market the full quota such area in 1950 and to reallot a quota deficit so determined. In cordance with the Administrati Procedure Act (60 Stat. 237), d consideration has been given to t data, views and arguments subm ted in writing by interested perso and to the data, views and arg ments expressed at the public he ing held on November 30 a December 1, 1949, in Washingt D. C., for the purpose of affordi interested persons an opportun to express their views with resp to the establishment of sugar q tas for the calendar year 1950.

Since the sugar quotas for so areas are relatively small, there making it possible for such are to exceed their quotas within few days after the beginning of t quota year, it is not possible comply with the 30-day effect date requirement of the Admin trative Procedure Act. Accordin § 813.11 through § 813.18 will come effective January 1, 1950.

§ 813.11 *Basic quotas for dom tic areas.* There are hereby est lished, pursuant to subsection of section 202 of the act, for dom tic sugar producing areas for t calendar year 1950, the followi quotas:

Area:	Quotas in t of short t raw valu
Domestic beet sugar	1,800,0
Mainland cane sugar	500,0
Hawaii	1,052,0
Puerto Rico	910,0
Virgin Islands	6,0

(Continued on Page 140)

THE FARMER AND THE WELFARE STATE

The speech printed below was presented by Mr. F. A. Graugnard, r., of St. James, La., to the 3rd Annual Southern Farm Forum held in ew Orleans on January 12th and 13th.

The Forum was sponsored by the Agricultural Committee of the ew Orleans Chamber of Commerce of which Mr. T. F. Cox is Chairman nd Mr. Emile Morvant is Vice-Chairman.

Mr. Moderator, Ladies and Gen-men, Members of the Panel—

At the outset I wish to state that e views presented in my discus-n are my own personal views and ey do not necessarily represent ose of the associations, groups, mmittees or organizations with om I am affiliated.

In my approach to the problem signed to me on this forum I nk it very appropriate to quote om Daniel Webster, who said, hen tillage begins, other arts fol-v. The farmers, therefore, are the nders of civilization".

Southern Agriculture, in my opin-views the trend to the Welfare te with grave concern. I say s because the welfare state, as are discussing it here today, stitutes a serious threat to the tem of government and business we have always understood it, d which, incidentally, is the sys-n that has brought to this Nation position of "First" in produc-n, education, science, agricultural oductivity and standard of living.

The welfare state, according to publication Business Week, has en defined as government guaran- of economic security to all citi-s, plus a redistribution of wealth oth by the process of taxation.

But, former Secretary of State, mes F. Byrnes, in a speech last ril at Washington and Lee Uni-sity, warned against the dangers the Welfare State in which the erican people would become onomic slaves". He also voiced ear that the United States might "going down the road to stat-".

The planners of the welfare state are trying to push through the following socialized program:

a) Compulsory Health Insurance (socialized medicine)—to cost between $5.6 billion to $15 billion yearly.
b) Federal Aid to Education—to cost initially $300 million.
c) Expanded Social Security Program—to cost $6.4 to $7.5 billion in 1950.
d) Brannan Farm Price Support Plan (socialized agriculture) to cost $5 billion to $15 bil- annually.
e) Subsidized Housing—to ultimately cost close to $10 billion. Authorizations for loans and grants already $1.5 billion or a total of from $18.8 billion minimum to $47.5 billion each year.

The theory of the welfare state blandly teaches that the central government must control and manage houses, food, health, education, money, prices, production distribution and profits. These controls are close akin to socialism.

An example of perfect cradle to the grave security can be found in the lowly pig. The sow is kept in the best of condition to be bred to the finest of stock. At farrowing time the sow is sheltered in a farrowing shed, with straw on the floor for comfort. Feed is kept before the pigs to hasten their growth, an oiled post is provided where they may scratch themselves. When the pigs are ready for market they walk to the slaughter house run without fear, because the sublime

(Continued on Page 137)

PRODUCTION OF LOUISIANA SUGAR AND MOLASSES
1949 CROP

	Tons
Tons of sugarcane ground for sugar (gross)	5,210,195
Sugar Production:	
Refined granulated	59,493
Plantation granulated	9,253
Turbinados	26,856
Raws	308,866
Total sugar produced	404,468
Total sugar produced, raw value	415,633
Sugar estimated in magma, raw value	178
Total sugar produced and estimated in magma, raw value	415,811
Total sugar produced and estimated in magma, per gross ton of cane, pounds, raw value (Pounds)	159.61
Sugar estimated in commercial molasses, raw value	4,382
Total sugar made and estimated, raw value	420,192
Total sugar made and estimated, ton of gross cane, raw value, pounds (Pounds)	161.30
Molasses Production:	
First molasses produced, gallons	1,588,612
Second molasses produced, gallons	1,725,655
Blackstrap molasses produced, gallons as made	30,121,524
Blackstrap molasses produced, gallons 80° brix	33,090,925
Blackstrap molasses estimated from magma, gallons	33,955
Blackstrap molasses produced and est. from magma, 80° brix, gals.	33,124,880
Sugarcane ground for syrup, tons[1]	40,564
Gallons of syrup produced[2]	1,075,843
Gallons of sprup produced the ton of cane	26.52

[1] Not included in sugarcane for sugar tonnage
[2] Not classed as edible molasses

RAW SUGAR AND BLACKSTRAP PRICES 1949-50

Official weekly averages quoted by the Louisiana Sugar Exchange, Inc., since the start of the pricing period have been as follows:

Week ending October 13, 1949
Raws 5.95. Blackstrap 5 cents.
Week ending October 20, 1949
Raws 5.99. Blackstrap 5.10 cents.
Week ending October 27, 1949
Raws 6.03. Blackstrap 5.425 cents.
Week ending November 3, 1949
Raws 5.98. Blackstrap 5.625 cents.
Week ending November 10, 1949
Raws 5.94. Blackstrap 5.781 cents.
Week ending November 17, 1949
Raws 5.87. Blackstrap 5.875 cents.
Week ending November 24, 1949
Raws 5.85. Blackstrap 5.828 cents.
Week ending December 1, 1949
Raws 5.77. Blackstrap 5.781 cents.
Week ending December 8, 1949
Raws 5.72. Blackstrap 5.788 cen
Week ending December 15, 1949
Raws 5.73. Blackstrap 5.758 cen
Week ending December 22, 1949
Raws 5.73. Blackstrap 5.825 cen
Week ending December 29, 1949
Raws 5.70. Blackstrap 5.781 cen
Week ending January 5, 1950
Raws 5.64. Blackstrap 5.703 cen
Week ending January 12, 1950
Raws 5.69. Blackstrap 5.50 cent
Week ending January 19, 1950
Raws 5.73. Blackstrap 5.721 cen
Week ending January 26, 1950
Raws 5.77. Blackstrap 5.775 cen

SEASONS AVERAGE PRICE

Raws 5.8181. Blackstrap 5.64 cents.

SUGAR REQUIREMENTS FOR 1950

TITLE 7—AGRICULTURE

hapter VIII—Production and Marketing Administration (Sugar Branch), Department of Agriculture

ubchapter B—Sugar Requirements and Quotas (Sugar Reg. 811)

Part 811—Sugar Requirements; Continental United States

Basis and purpose. The determinat forth below is made pursuant to ction 201 of the Sugar Act of 48. The act requires that the Sectary of Agriculture make such dermination for the calendar year 50 during December of 1949. The termination has been based, insor as required by section 201 of the t, on official statistics of the Dartment of Agriculture and statisics published by other agencies of e Federal Government. The purse of such determination is to prode the amount of sugar needed to eet the requirements of consumers the continental United States for e calendar year 1950. The deterination provides a basis for the tablishment of sugar quotas for ch year pursuant to section 202 of e act.

Prior to the issuance of this dermination, notice was given (14 .R. 6719) that the Secretary of griculture was preparing, among her things, to determine the sugar nsumption requirements for the lendar year 1950 and that any inrested person might present any ata, views, or arguments with reject thereto at a public hearing to e held in Washington, D. C., on ovember 30, 1949. In addition, the otice stated that any interested erson might present any data, iews, or arguments with respect ereto in writing not later than ecember 12, 1949. In making this etermination, due consideration has een given to the data, views, and arguments expressed at the hearing held on November 30, and December 1, 1949, and the data, views, and arguments submitted in writing on or before December 12, 1949, in accordance with the Administrative Procedure Act (60 Stat. 237).

Since the Sugar Act of 1948 requires that the Secretary of Agriculture determine sugar consumption requirements for the calendar year 1950 during the month of December 1949, it is not possible to comply with the 30-day effective date requirement of the Administrative Procedure Act. Accordingly, this determination shall be effective when published in the FEDERAL REGISTER.

§ 811.2 *Consumption requirements, 1950.* The amount of sugar needed to meet the requirements of consumers in the continental United States for the calendar year 1950 is hereby determined to be 7,500,000 short tons, raw value.

Statement of Bases and Considerations

Section 201 of the Sugar Act of 1948 reads as follows:

The Secretary shall determine for each calendar year, beginning with the calendar year 1948, the amount of sugar needed to meet the requirements of consumers in the continental United States; such determinations shall be made during the month of December in each year for the succeeding calendar year (in the case of the calendar year 1948, during the first ten days thereof) and at such other times during such calendar year as the Secretary may deem necessary to meet such requirements. In making such determinations the Secretary shall use as a basis the quantity of direct consumption sugar distributed for consumption, as indicated by official statistics of the De-

partment of Agriculture, during the twelve-month period ending October 31 next preceding the calendar year for which the determination is being made, and shall make allowances for a deficiency or surplus in inventories of sugar, and for changes in consumption because of changes in population and demand conditions, as computed from statistics published by agencies of the Federal Government; and, in order that such determinations shall be made so as to protect the welfare of consumers and of those engaged in the domestic sugar industry by providing such supply of sugar as will be consumed at prices which will not be excessive to consumers and which will fairly and equitably maintain and protect the welfare of the domestic sugar industry, the Secretary, in making any such determination, in addition to the consumption, inventory, population, and demand factors above specified and the level and trend of consumer purchasing power, shall take into consideration the relationship between the prices at wholesale for refined sugar that would result from such determination and the general cost of living in the United States as compared with the relationship between prices at wholesale for refined sugar and the general cost of living in the United States obtaining during 1947 prior to the termination of price control of sugar as indicated by the Consumers' Price Index as published by the Bureau of Labor Statistics of the Department of Labor.

Pursuant to the provisions of this section the determination of the sugar consumption requirements has been based upon the following:

(1) *Distribution of sugar for consumption during the twelve-month period ending October* 31, 1949, For the twelve months ending October 31, 1949, there were distribute 7,644,000 short tons, raw value, c direct consumption sugar.

(2) *Inventories of sugar.* Stock of sugar held by refiners and in porters on November 30, 1949, wer approximately equal to those on th same date a year earlier. In vie of the efforts of the Hawaiian in dustry to maximize shipments b fore the end of the calendar yea total stocks held by refiners an importers may be somewhat large on December 31, 1949, than the were on December 31, 1948. Avai able information indicates tha stocks held by industrial user wholesalers and retailers have bee relatively constant for the past yea and recent market activity does no indicate that these groups desire t increase their stocks. Inventorie as a whole appear adequate but no excessive, and accordingly, no allow ance is made for either a surplus c a deficiency in inventories.

(3) *Population and demand con ditions, including the level and tren of purchasing power.* It is believe that population in 1950 will be a least one percent higher than i 1949 and would warrant some allow ance under other circumstance However, the index of income of in dustrial workers is estimated t have dropped from 364 percent c the prewar (1935-39) average i 1948 to 345 for 1949. Cash receip from farm marketings have declin from 389 percent of the prewa level in 1948 to 345 percent i 1949.

The wholesale price of refined su gar averaged about 167 percent c prewar during the first ten month of 1949. Although the increase i the purchasing power of consume has been much greater than the in crease in sugar prices since th prewar period, per capita distribu tion in 1949 was below the 1935-3 average.

Although quoted prices for re fined sugar did not change, suga

stribution during the ten weeks ded December 10 was 64,000 tons ss than for the corresponding pe- od in 1948 and raw sugar prices clined from 6.05 cents per pound October 27 to a low of 5.7 cents early December. In view of these idences of weakening demand and view of the conditions outlined (4) below, which more than off- t the effects of increased popula- n, a net reduction of 144,000 ort tons, raw value, is made.

(4) *Relationship between wholesale sugar prices and the cost of ing.* During the first ten months 1949 the wholesale basis price r refined sugar has averaged out 0.9 cent per pound less than e price which would maintain the lationship with the Consumers' ice Index which obtained during e last ten months of price control sugar. In October 1949, the lat- t month for which the index is ailable, it would have required a ice of 8.82 cents per pound to aintain such relationship. The al ceiling price under price con- ol was 8.40 cents per pound. The rrent wholesale price is 8.05 cents r pound. At the same time, costs producing, processing and trans- rting sugar remain high.

It is believed that the quantity of 500,000 tons determined to be eded to meet consumer require- nts for 1950 will provide, under ospective demand conditions, a pply of sugar which will be con- med at prices which will not be cessive to consumers and which ill fairly and equitably maintain d protect the welfare of the do- estic sugar industry.

It is hereby found and concluded at the determination made above ill meet the requirements of the igar Act of 1948.

(Sec. 403, 61 Stat. 932; 7 U.S.C., p., 1153)

Done at Washington, D. C., this d day of December 1949. Witness my hand and the seal of the Department of Agriculture.

CHARLES F. BRANNAN,
Secretary of Agriculture

THE FARMER

(Continued from Page 133)

security in which they have been kept has made them complacent. Now, compare the "security pigs" with that of the boar in the forest. He has to exist on what his efforts will furnish him. He is on constant guard against the ever present dangers. He knows freedom and cannot afford complacency.

The welfare state planners talk of security. Security that removes initiative and invites complacency creates a destroying element within itself. Ultra security stops or seriously hampers production, so necessary for its support. Another vivid example of the effects of supreme security can be found in the French Maginot Line. The complete complacency of the French people behind their confidence in the Maginot Line brought them to total collapse.

From many government sources we hear talk of security. The word "opportunity" in its true meaning is seldom used. The widespread interest in security is alarming if it finally obliterates the idea of opportunity. The free, competitive enterprise system will itself collapse if the incentive of opportunity is removed. The word "security" has tremendous appeal. That's why anything so labeled is not easy to criticize. However, it can safely and soundly be argued that full reliance should not be placed on things solely devised to provide security. The value of opportunity to better one's position can be stressed without expressing disapproval of the broad argument in its behalf.

"Is there any opportunity left in America?"

"I believe there is."

The chances of rising to the top

in any organization or enterprise still exist. Each year thousands of new management jobs have to be filled. They will be occupied by young men who do not confine their thinking only to security of jobs and pay. Yes, the idea of opportunity is still salable, although it may not be getting the kind of sales push it needs to balance the drive for wild promises of security.

No security means anything unless there is something dependable back of it. An insurance policy will pay off if the insurance company is solvent. Pensions, old age benefits, stocks and bonds—are only as solvent and as solid as the company, the government or organization which sponsors them.

It is elementary that a financial statement that shows liabilities in excess of assets is in a dangerous condition. Is our government, on its path toward a welfare state any exception to this rule? Can the practitioners of political legerdemain create something for nothing? Not according to my mathematics!

Here in the United States we are living off the resources accumulated for us by our forefathers through one hundred and sixty years of hard work and thrift and energy and initiative. To many who do not look beneath the surface, there is every evidence of prosperity in the United States. But a nation cannot be prosperous—no more than can the individual—that is mortgaged to the hilt and still living beyond its income.

The basic issue of the Brannan Plan is whether we shall collect untold billions in taxes and pass this money out in cash subsidies, coupled with innumerable acreage and marketing controls, directed and administered by a vast army of additional government employees, or give the farmer comparative freedom and protect him with a system of flexible price supports.

It is inconceivable that the welfare state magicians could assur high income to the farmers on on hand and low consumer prices o the other without one of the mos costly and absolute economic cor trols that this nation has eve known.

The Brannan Plan theory, if ap plied to labor, would be comparabl to unions giving up their contract with management and permittin wage levels to settle at whateve the individual laborer could get. Th government would then step in an make up the difference to the ind vidual between what he was gettin paid, and what the governmer thought his efforts were worth. Th same theory could be applied to in dustry. Such a theory is as unfa as it is ridiculous. I would n recommend such for labor or ma agement, nor do I care for it i agriculture.

In 1942 the Supreme Court he —that it is hardly lack of due pr cess for the government to reg late that which it subsidizes. farmer, or any other person, as fa as that goes, cannot be both d pendent and independent.

The Department of Agriculture under a misapprehension. Inste of being a servant to carry out far policies, its great staff of econor ists, scientists and marketing e perts are taking over the job making policy and running the n tion's agriculture. Farm legislati must be developed by farme through their own farm organiz tion in cooperation with the me bers of Congress who are sincere interested in the long-time intere of farmers, and who are determin to fit a sound farm program into o free enterprise system. It is not t job of government agency perso nel to formulate agricultural poli and seek its enactment into law was the case of the Brannan pr gram that saw no effort to couns with farmers and their organiz tions, and which has since been a

ressively opposed by the American arm Bureau Federation. Advising n administrative procedure should ot be confused with attempting to ssume the role of spokesman for rmers. It is not the role of the rm program agencies to get into ie legislative field. Theirs is an dministrative role.

Farm people do not want to be- me the economic slaves of other conomic groups. Neither do they ant to become the economic and olitical slaves of government. This as happened in other nations. Each me it has led towards Socialism or ommunism.

The political impact of this con- ntration of government power up- n our American freedom can best e realized when we recall that the ederal Government now actually as more annual income than all ie six million farmers in the nited States combined.

We must all realize that an at- ck on the freedom on one segment f our society is an attack on the reedom of all.

In our own farming industry as ell as with the rest of the nation, here are some who are not averse, t times, to attempt government as- stance in solving their competitive roblems. This view point causes ose who have been caught by the eavy hand of government control accept with indifference the read of this control to their com- etitors. This indirect regulation of mpetition is the greatest threat to ur free economy, and the short ghtedness of those who will accept ie short term advantages accruing them, as a result of controls laced upon others, is a formidable bstacle to the preservation of our ee institutions. Only when all in- ividuals and all groups dedicate iemselves to the preservation of reedom for all will the threat to ur free institutions and economy e removed.

One of the features of the Bran- nan Plan demonstrates the thinking of the Master Planners behind such theory, namely—curtail overproduction and prevent drastic price declines as in the past through marketing agreements, acreage allotments, or marketing quotas. If these fail through the lack of cooperation of the farmers, all price supports could be withdrawn. "He that giveth can also taketh away".

A great American and our living Ex-President, Herbert Hoover, who is recognized as one of the world's leading analysts of government today and recently, "Most Americans do not believe in compromises with collectivism. But they do not realize that through governmental spending and taxes our nation is blissfully driving down a back road at top speed.——

"We have not had great socialization of property but we're on the last mile to collectivism through government collection and spending of the savings of the people".

What Mr. Hoover had reference to is the staggering cost of operating our National Government—more than 44 billions of dollars a year.

How much is $44 billion—Let me illustrate by a few ifs—

For instance—

If every person in America cashed in his life insurance policy, the total would amount to $44 billion, and the government is spending more than that amount this year.

If every urban home owner sold his home, the total amount realized would be $30 billion, and the government spends that much in eight months.

If every farmer in this country sold his farm equipment and livestock, they would realize $25 billion—enough to keep the government in business seven months.

If the net working capital of every industry was converted into cash, it would amount to $39 billion, and would take care of government spending for less than

eleven months.

In closing my remarks, I would like to repeat what Thomas Jefferson, one of the founders of our Constitution and a great believer in democratic processes, so wisely said, and I quote, "Were we directed from Washington when to sow, when to reap, we should soon want bread."

QUOTAS

(Continued from Page 132)

§ 813.12 *Basic quotas for other areas.* There are hereby established, pursuant to subsections (b) and (c) of section 202 of the act, for foreign countries for the calendar year 1950 the following quotas:

Area:	Quotas in terms of short tons, raw value
Republic of the Philippines	982,000
Cuba	2,219,400
Other foreign countries	30,600

§ 813.13 *Determination and proration of area deficits*—(a) *Deficit in quota for the Republic of the Philippines.* It is hereby determined pursuant to subsection (a) of section 204 of the act that for the calendar year 1950 the Republic of the Philippines will be unable by an amount of 300,000 short tons of sugar, raw value, to market the quota established for that area in § 813.12.

(b) *Proration of deficit in quota for the Republic of the Philippines.* An amount of sugar equal to the deficit determined in paragraph (a) of this section is hereby prorated, pursuant to subsection (a) of section 204 of the act, as follows:

Area:	Additional quotas in terms of short tons, raw value
Cuba	285,000
Foreign countries other than Cuba and the Republic of the Philippines	15,000

§ 813.14 *Proration of quota for foreign countries other than Cuba and the Republic of the Philippines*—(a) *Basic prorations.* The quota for foreign countries other than Cuba and the Republic of the Philippines is hereby prorated pursuant to subsection (c) of section 202 of the act, among such countries as follows:

Country:	Prorations in pounds, raw value
Belgium	361,221
Canada	692,481
China and Hongkong	353,619
Czechoslovakia	323,166
Dominican Republic	8,184,606
Dutch East Indies	259,444
Guatemala	411,044
Haiti	1,131,149
Honduras	4,212,987
Mexico	7,403,267
Netherlands	267,398
Nicaragua	12,544,822
Peru	13,640,969
Salvador	10,074,812
United Kingdom	430,394
Venezuela	355,936
Other countries	52,685
Subtotal	60,700,000
Unallotted reserve	500,000
Total	61,200,000

(b) *Additional prorations.* An amount of sugar equal to that part of the deficit prorated to foreign countries other than Cuba and the Republic of the Philippines under paragraph (b) of § 813.13 is hereby prorated, pursuant to subsection (d) of section 204 of the act, as follows:

Country:	Additional prorations in pounds, raw value
Belgium	177,337
Canada	339,966
China and Hongkong	173,605
Czechoslovakia	158,655
Dominican Republic	4,018,143
Dutch East Indies	127,371
Guatemala	201,798
Haiti	555,325
Honduras	2,068,320
Mexico	3,634,555
Netherlands	131,276
Nicaragua	6,158,743
Peru	6,696,884
Salvador	4,946,119
United Kingdom	211,297
Venezuela	174,743
Other countries	25,865
Subtotal	29,800,000
Unallotted reserve	200,000
Total	30,000,000

§ 813.15 *Direct-consumption portion of quotas or prorations*—(a) *Domestic areas.* Pursuant to subsections (a), (b), and (c) of section 207 of the act, the quotas established in § 813.11 for the following listed areas may be filled by direct consumption sugar not in excess of that following amount for each such area:

Area:	Direct-consumption sugar short tons, raw value
Hawaii	29,616
Puerto Rico	126,033
Virgin Islands	0

(b) *Other areas.* Pursuant to ubsections (d) and (e) of section 07 of the act, the quotas establish- d in §§ 813.12 and 813.13 for the ollowing listed areas may be filled y direct-consumption sugar not in xcess of the following amount for ach such area.

rea:	Direct-consumption sugar, short tons, raw value
Republic of the Philippines	59,920
Cuba	375,000

(c) Pursuant to subsection (a) f section 204 of the act, only those rorations of the quota for foreign ountries other than Cuba and the Republic of the Philippines estab- shed in paragraph (a) of § 813.14 nay be filled by direct-consumption ugar.

§ 813.16 *Liquid sugar quotas.* 'here are hereby established, pur- uant to section 208 of the act, for oreign countries for the calendar ear 1950 quotas for liquid sugar as ollows:

ountry:	Liquid sugar, wine gallons, 72 percent total sugar content
Cuba	7,970,558
Dominican Republic	830,894
Other foreign countries	0

§ 813.17 *Restrictions on market- ig and shipment.* Pursuant to sec- on 209 of the act, all persons are ereby prohibited, during the calen- ar year 1950, from:

(a) Bringing or importing into ne continental United States from ne Territory of Hawaii, Puerto Ri- o, the Virgin Islands, or foreign ountries, (1) any sugar or liquid igar after the applicable quota, or ne proration of any such quota, has een filled, or (2) any direct-con- umption sugar after the direct-con- umption portion of any such quota r proration thereof has been filled.

(b) Shipping, transporting, or narketing in interstate commerce, r in competition with sugar or li- uid sugar shipped, transported, or narketed in interstate or foreign ommerce, any sugar or liquid sugar roduced from sugar beets or sugar- cane grown in either the domestic beet sugar area or the mainland cane sugar area after the quota for such area has been filled.

§ 813.18 *Inapplicability of quota regulations.* Pursuant to section 212 of the act, §§ 813.11 to 813.17 shall not apply to (a) the first ten short tons, raw value, of sugar or liquid sugar imported from any foreign country, other than Cuba and the Republic of the Philippines, in the calendar year 1950; (b) the first ten short tons, raw value, of sugar or liquid sugar imported from any foreign country, other than Cuba and the Republic of the Philippines, in the calendar year 1950 for religious, sacramental, educational, or experimental purposes; (c) liquid sugar imported from any foreign country, other than Cuba and the Republic of the Philippines, in individual sealed containers not in excess of one and one-tenth gallons each; or (d) any sugar or liquid sugar imported, brought into, or produced or manufactured in the United States for the distillation of alcohol, or for livestock feed or for the production of livestock feed.

Statement of Bases and Considerations

A. *Basic quotas.* The basic quotas established for domestic areas are in amounts specified in the act. Section 202 of the act provides that the quota for the Republic of the Philippines shall be 952,000 short tons "as specified in section 211 of the Philippine Trade Act of 1946." Quotas under the Sugar Act are established in terms of "short tons, raw value." An amount of 952,000 short tons of Philippine sugar of usual polarization is equivalent to 982,000 short tons of sugar, raw value. Similarly, the portion of this quota which may be imported as direct-consumption sugar, established as 56,000 short tons in subsection (d) of section 207 of the act, is equivalent to 59,920 short tons, raw value. The basic quotas for other foreign countries have been

zer. We have on hand here at our established by applying the statutory percentages to the difference between the consumption estimate and the sum of the quotas established for domestic areas and the Republic of the Philippines. The quota for foreign countries other than Cuba and the Republic of the Philippines has been prorated on the basis of the original proration made for 1937, as provided by the act. The amounts of the quotas and prorations which may be filled by direct-consumption sugar are as specified in the act. The liquid sugar quotas equal those specified in the act.

B. *Deficit in quota for the Republic of the Philippines.* Total production in the Republic of the Philippines from the 1949-50 crop is expected to be about 835,000 short tons. This level of production, together with current estimates of local consumption and of shipments that may be made in 1950 from 1950-51 crop sugar, make it appear that the 1950 deficit may finally be as much as 350,000 short tons. However, the size of the 1949-50 crop will not be determined until the crop is completed several months hence and local consumption is not necessarily restricted to present estimates. Therefore, it is determined at this time that the Philippine deficit will be 300,000 short tons, raw value. Accordingly, this quantity has been prorated to Cuba and foreign countries other than Cuba and the Philippines on the basis of 95 percent to Cuba and 5 percent to such other countries as required by the act. This additional quota for foreign countries other than Cuba and the Republic of the Philippines has been prorated on the same basis as the basic quota for these countries was prorated.

After giving effect to the basic quotas and the proration of the Philippine deficit, the quotas in terms of short tons of sugar, raw value, for the several domestic sugar eign countries," are as follows:

Basic Quotas, Proration of Philippine Deficit an Adjusted Quotas, 1950

(Short tons, raw value)

Production Area	Basic quota	Proration of deficit in quota for Philippines	Adjuste quota
Domestic beet sugar	1,800,000	----------	1,800,0
Mainland cane sugar	500,000	----------	500,0
Hawaii[1]	1,052,000	----------	1,052,0
Puerto Rico[1]	910,000	----------	910,0
Virgin Islands	6,000	----------	6,0
Philippines[1]	[3]982,000	(300,000)	682,0
Cuba[1]	2,219,400	285,000	2,504,4
Other foreign countries:[2]			
Belgium	180.6	88.7	269
Canada	346.2	170.0	516
China and Hongkong	176.8	86.8	263
Czechoslovakia	161.6	79.3	240
Dominican Republic	4,092.3	2,009.1	6,101
Dutch East Indies	129.7	63.7	193
Guatemala	205.5	100.9	306
Haiti	565.6	277.7	843
Honduras	2,106.5	1,034.2	3,140
Mexico	3,701.6	1,817.3	5,518
Netherlands	133.7	65.6	199
Nicaragua	6,272.4	3,079.4	9,351
Peru	6,820.5	3,348.4	10,168
Salvador	5,037.4	2,473.1	7,510
United Kingdom	215.2	105.6	320
Venezuela	178.0	87.3	265
Other countries	26.4	12.9	39
Unallotted reserve	250.0	100.0	350
Subtotal	30,600.0	15,000.0	45,600
Total	7,500,000	----------	7,500,0

[1] The following quantities may be entered as direct-co sumption sugar. Hawaii, 29616 tons; Puerto Rico, 126,03 Philippines, 59,920; Cuba, 375,000.

[2] Prorations of basic quota may be filled with direct-co sumption or raw sugar. Prorations of Philippine defi may be filled with raw sugar only.

[3] Regardless of deficit proration, by reason of secti 204(c) of the act the Republic of the Philippines retains basic quota.

Done at Washington, D. C., th 22d day of December 1949. Witne my hand and the seal of the Depar ment of Agriculture.

(Seal) CHARLES F. BRANNAN
Secretary of Agricultu

FERTILIZER

(Continued from Page 131)

Plantation Anhydrous Ammonia Corp.

P. O. Box 807—Houma, La.

January 6, 19

Mr. J. C. Bourg
American Sugar Cane League
Washington, D. C.

Dear Mr. Bourg:

I happened to see a copy of yo memorandum of December 27, 19 in connection with nitrogen ferti

roducing areas, the Republic of the hilippines, Cuba, and "Other for- ant in Houma a fair supply of An- ydrous Ammonia for the conven- nce of the Louisiana sugarcane nd corn farmers. This, of course, the new type of nitrogen fertili- r that has become so popular in ississippi, California, and parts of ouisiana.

Our fertilizer can be delivered ther in small nurse tanks or field nks via truck to the farmers' own elds, or it can be delivered in tank rs to the farmers' rail spurs. The ain problem, as we see it this year, that some of the growers will de- y in placing their orders for the uipment to apply Anhydrous Am- onia so that some of the orders r such equipment will so overload e manufacturer's facilities that lays will occur.

Once the equipment is on hand, e farmer can do a very rapid job applying Anhydrous Ammonia.

The availability of Anhydrous mmonia has already materially re- ced fertilizer costs to Louisiana garcane farmers.

The farmers know special equip- ent is needed to handle and apply nhydrous Ammonia and are misled ith the idea of having to put out lot of money on this equipment er and above what it would cost e farmer to fertilize with solid rtilizer. This is not true, as any rmer having just three hundred res can use Anhydrous Ammonia ying the necessary equipment for e same amount it would cost to rchase the equivalent in solid rtilizer. Farmers with larger reage can receive Anhydrous Am- onia and the equipment far below e actual cost of solid fertilizer. ne second year using Anhydrous mmonia, the farmer will save ap- oximately 25 per cent or more on e cost of his fertilizing since he s already paid for his equipment with the savings between the cost of solid fertilizer and Anhydrous Ammonia.

Ammonia is especially well adapted for use on sugarcane, corn and cotton. In general, nitrogen is the only element applied to cane, corn and cotton. The Ammonia can be applied early with minimum leaching losses. Ammonia will continue to be the cheapest source of nitrogen and the easiest to apply. Even in the case of the application of minerals, the minerals can be applied at the rate of 300-400 pounds of per acre of 6-8-12 from hoppers on the sides of the tractor while 60 pounds of nitrogen as ammonia is being delivered in the soil through the regular applicators. Ammonia lends itself well to preplanting and split applications. These are subjects that must be worked out.

Very truly yours,
"JOHN W. DUGAN"
President

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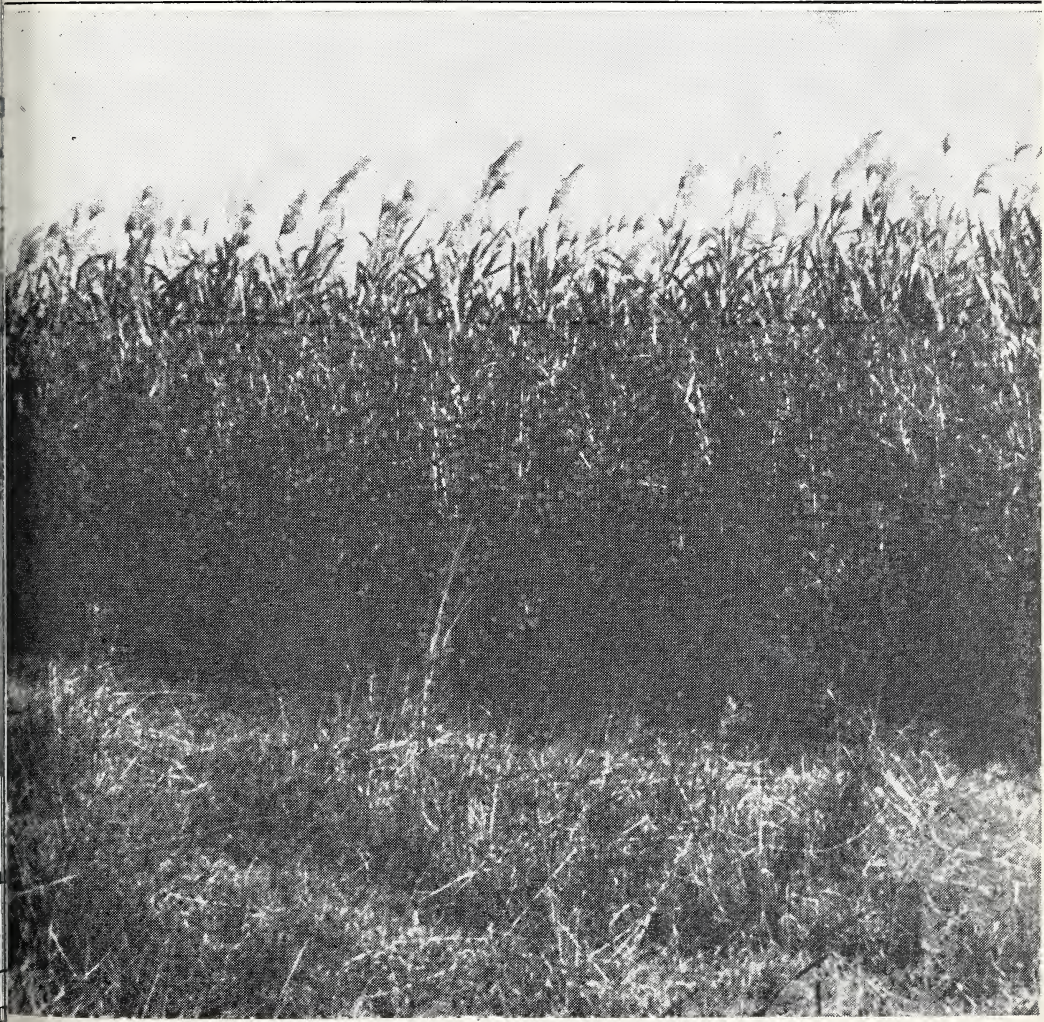
28 NEW ORLEANS, LA., FEBRUARY 15, 1950 No. 10



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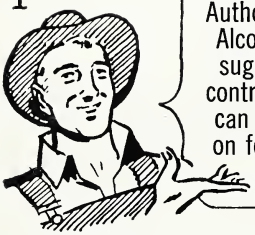

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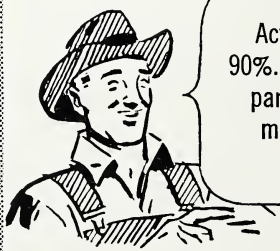
4



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THE
SUGAR BULLETIN

414 Whitney Bldg., New Orleans 12

MARCEL J. VOORHIES, Editor

The Official Organ of the American Sugar Cane League of the U. S. A.

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GOV. EARL K. LONG WRITES SECRETARY BRANNAN

NOTE: This is a copy of a letter sent to Secretary of Agriculture Brannan. I am glad to assist the sugar cane industry in any way that I can. —*Earl K. Long*

January 24, 1950

Honorable Charles F. Brannan
Secretary of Agriculture
United States Department of Agriculture
Washington, D. C.

Dear Mr. Brannan:

I am impelled to address this letter to you because of my serious concern with reference to the welfare of the Louisiana sugar cane farmers and processors. My concern, as Chief Executive of the State of Louisiana, can be understood when it is realized that I am referring to some eight or ten thousand Louisiana families and to an industry which has for many years contributed greatly to the economy of this state.

I have understood for some time that because of increase in cost and decrease in return, many Louisiana sugar cane farmers and processors have been in financial difficulties. My attention has been directed to, and I have before me, an article appearing in The New Orleans Times-Picayune of January 6, 1950, headed "Sugar Factory Liquidation Set," in which it is stated that six Louisiana sugar mills were going out of business and, possibly, several more. My investigation has disclosed that this statement is correct and that six Louisiana sugar mills or processors discontinued their operations after the 1948 crop and did not operate during the 1949 season, just completed. It appears, unless some relief is forthcoming, others will be forced to follow the same course.

The increase in minimum wage rates, effective January 25, 1950, will not minimize the possibility of additional factories being forced to discontinue operations. I am alway in favor of the highest possib wages for labor and have no quarr with this amendment to the Fa Labor Standards Act. Further, I a sure the Louisiana processors a delighted to pay the increase i wages, but they must have an ad quate return in order to do so.

Because of the depressed price raw sugar, on which the price sugar cane is directly based, t growers are in distress. Moreove if the processing establishments a forced out of business, the growe will have no market whatever f their sugar cane. If this trend co tinues, it is not difficult to visuali the extinction of our Louisiana s gar industry.

Not only does Louisiana sug cane and sugar play an importa part in the economy of our sta and its citizens, but you will u doubtedly agree it is vital to t welfare of our nation, as was co clusively established during the r cent world conflict. This should n be soon forgotten, particularly view of the present state of intern tional unrest and threat of Co munism.

In view of the above, I reque that the full power of your offi be directed to the alleviation of th situation. Based on my understan ing of the Sugar Act of 1948, a particularly Section 201 of that A the authority and duty by congre sional mandate to do so is in yo hands.

I shall not quote from Section 2 of the Sugar Act, with which y are more familiar than I. Howeve it appears obvious that the welfa of at least the Louisiana segment

(Continued on Page 159)

OMMISSIONER ANDERSON WRITES SECRETARY BRANNAN

January 27, 1950

Honorable Charles F. Brannan
ecretary of Agriculture
Jnited States Department of
Agriculture
Vashington, D. C.

Dear Mr. Brannan:

I am prompted to write you be-ause of my concern about Louisiana ugarcane farmers and processors vho are finding themselves in finan-ial difficulties because of increased osts in their operations and a de-rease in return for their efforts. his situation was forcibly brought o my attention in a recent article n the Times Picayune headed "Su-ar Factory Liquidation Set" in vhich it was stated that a number f Louisiana sugar mills were going ut of business and possibly sev-ral more would follow. As you robably know, some of the Louisi-na sugar mills discontinued their perations after the 1948 crop, and he remaining sugar mills were tax-d to capacity and more to take are of the cane produced in 1949. Vith additional mills ceasing opera-ion this year, the picture is becom-ng quite gloomy for our Louisiana ugarcane growers whose land is specially adapted for the produc-ion of this crop on which such ow returns are being realized.

The minimum wage rate which is ffective is a matter of additional oncern to factories because of the nadequacy of returns on operation. am quite sure that the Louisiana ugar mills do not object to paying ncreased minimum wage rates pro-ided the returns on such operations re sufficient for them to do so. ertainly, I would like to see our abor receive as much pay as possi-ble; however, I realize, and I am sure that you realize, if the returns to the sugar mills are inadequate to pay the increased wage rates, they have no alternative but to cease operations. This will leave our sugarcane growers with no market for their cane.

If something is not done to alleviate the distressed condition, this age-old industry that has meant so much to the economy of Louisiana and its citizens and to the welfare of the nation, will in a short time cease to exist.

It is my understanding of Section 201 of the Sugar Act of 1948 that the entire matter is in your hands by congressional mandate, and it is respectfully requested that the authority with which you are vested be used to alleviate a serious and distressed condition in the sugar industry.

It would appear that the domestic sugar industry in Louisiana is not being maintained as contemplated by the Act. The evidence of this is the low price of raw sugar as compared with other commodities. During OPA the price of raw sugar was 6.32 cents; since then the price index on other commodities show an increase, while the price of raw sugar had declined to about 5.75 cents. The price paid to farmers for sugarcane is based on the price of raw sugar.

I trust that with your many problems you will find time to look into the urgency of the situation and that something can be done to correct same.

Sincerely yours,
W. E. Anderson
Commissioner

MESSRS ELLENDER, LONG, BOGGS AND WILLIS WRITE SECRETARY BRANNAN

UNITED STATES SENATE
Committee on
Agriculture and Forestry
January 9, 1950

The Honorable
Charles F. Brannan
Secretary of Agriculture
Washington, D. C.

Dear Mr. Secretary:

We were very much disappointed in your determination of December 22, 1949 which fixed a high quota of 7,500,000 tons for 1950. We are particularly distressed because the effect of this excessive estimate, at this time, is quite disastrous to our Louisiana sugar growers and to the raw sugar producers.

As has been represented to you in the briefs filed by Mr. Clarence J. Bourg of the American Sugar Cane League, there is considerable question as to the necessity of estimating such a high quota during the season when the price of cane is fixed. Raw sugar is also sold on a season's average price, beginning in early October and ending February 1st.

In making the announcement, Mr. Lawrence Myers, Director of the Sugar Branch, said that the 1950 quota should cause little if any change in wholesale or retail prices. The market has disagreed with that view, and the price of raw sugar, which was 5.75¢ at the time of your estimate, is now 5.65¢. Of course, the growers and raw sugar processors in Louisiana remember all too well that the price of raw sugar in 1947 under O.P.A. was 6.32¢, and as they interpret the Sugar Act, the price should be at least that, plus some adjustment because of the increase in the costs of production.

We are particularly disappointed and distressed that you were not willing to accept the suggestions made in practically all of the briefs of the domestic areas, and particularly in the brief for Louisiana that an initial estimate could and should have been made to take care of all consumers amply well into the Spring. We cannot understand how any one could anticipate that a estimate of 7,500,000 tons would not have been a depressing or bearish effect on raw sugar.

Knowing that the price of sugar cane and the price of raw sugar in Louisiana is determined between October 1st and February 1st, we had expected that you would take this extremely critical situation into serious consideration and make some provision that would protect and maintain the growers and the factories in Louisiana, at least the marketing season. Frankly, we cannot interpret your action as friendly to the Louisiana Sugar Industry, a a reasonably smaller estimate on December 22nd could certainly have been justified and need not have been continued beyond the Spring. It would, moreover, have carried out the Mandate of Congress to maintain and protect the welfare of these producers.

Admitting that we have all been disappointed in the price decrease although it could hardly be avoided with an estimate as high as 7,500,000 tons, there is still an opportunity left for you to demonstrate your friendliness for our industry in Louisiana in a perfectly proper and honorable manner. The refiners are holding back against making any purchases since December 22nd except when they can get raw sugar at a few points below the existing market. This, despite the fact that the refiners are low in raw sugar stocks and will very soon need add

(Continued on Page 156)

LETTERS FROM SECRETARY BRANNAN

"January 13, 1950

onorable Allen J. Ellender
nited States Senate

ear Senator:

This is in reply to the letter of nuary 7, 1950, concerning the su- r consumption requirements de- rmination for 1950 and current gar prices, which was signed intly by you, Honorable Russell Long, Honorable Hale Boggs and onorable Edwin E. Willis.

The sugar consumption require- nts determination for 1950 was nounced on December 22, 1949, ter full consideration of the data, ews, and arguments presented by terested persons at the public aring held in Washington on ovember 30 and December 1, 1949, d the additional information re- ived in the form of written briefs om various producing and con- ming interests. This material was refully evaluated in accordance ith the various considerations set rth in Section 201 of the Sugar ct of 1948 in arriving at the de- rmination that 7,500,000 short ns, raw value, would be required 1950. We believe you are familiar ith the statement of bases and con- derations contained in the official termination and summarized in r press release of December 22, nouncing the determination.

After that announcement, the ty-paid New York price of raw gar dropped from 5.75 cents per ound to 5.65 cents per pound. This cline in price had very limited ef- ct on returns to growers because of s temporary nature. As you are vare, the price recovered on Jan- ry 11 to 5.75 cents. New York w sugar prices during the Louisi- na marketing season to date have veraged 5.87 cents per pound. This mpares with an average New York price for the 1948-49 crop settlement period of approximately 5.67 cents. Thus, the price of raw sugar so far for the current crop averages about 4 percent higher than for the season a year ago. At the same time, the Consumers' Price Index during the first two months of this settlement period averaged 169 as compared with 173 for the two corresponding months a year earlier.

Temporary market fluctuations in either raw or refined sugar prices do not generally warrant consideration under Section 201. Rather, it is those price movements which persist long enough to indicate a definite trend or the establishment of a new level of prices which should properly be considered along with the other factors in Section 201 in arriving at determinations or revisions of determinations of sugar consumption requirements. Inasmuch as the 1950 determination was announced only three weeks ago and in view of the comparatively minor fluctuations in raw sugar prices which have occurred during that period, there is no basis for concluding that a significant trend in prices has been established.

The determination of sugar consumption requirements under the Sugar Act of 1948 must give careful consideration to all of the factors set forth in Section 201 and provide a supply of sugar for the calendar year in accordance with the mandate that the interests of both domestic producers and consumers be protected. We believe that the present determination carries out that mandate.

We will, of course, be happy to meet with you and review the situation affecting the domestic industry. In the meantime, you may be

(Continued on Page 158)

LOUISIANA CONGRESSIONAL DELEGATION ANSWERS SECRETARY BRANNA

UNITED STATES SENATE
Committee on
Agriculture and Forestry
February 8, 1950

Honorable Charles F. Brannan
The Secretary of Agriculture
Washington, D. C.

Dear Mr. Secretary:

We regret very much that your letter of February 3 was delayed so long. It arrived after the end of the raw sugar and sugar cane pricing season in Louisiana.

We agree with you that "it is unfortunate that the decline in domestic raw sugar came about the time the Louisiana selling season was getting under way and that the recent recovery came after most of the Louisiana crop was sold." It is our belief that this could have been avoided by the exercise of powers which Congress gave you under the Sugar Act.

We have represented to you time and again that under prevailing conditions, and especially in view of the fact that the 75¢ minimum wage is now in effect, the sugar cane farmers and the raw sugar factories in Louisiana cannot be maintained long in a state of solvency. We have directed your attention to the fact that among others Honorable Charles Sawyer, Secretary of Commerce, is in substantial agreement regarding the economic distress prevailing in the industry.

Since these facts are uncontroverted from any source, we assume that you, too, agree to their existence. It has been and is our position that it is within your power to meet these conditions under the clear mandate of the Sugar Act.

Section 20 of the Sugar Act 1948 provides that:

". 1. such determinations sh be made so as to protect the w fare of consumers and of tho engaged in the domestic sugar i dustry by providing such supp of sugar as will be consumed prices which will not be excessi to consumers and which will fa ly and equitably maintain and pr tect the welfare of the domes sugar industry."

In the light of that mandate, respectfully inquire as to what ste you would now propose or conte plate to relieve this intolerable situ tion.

Sincerely yours,

(Signed) Allen J. Ellender,
U. S Senator
Russell B. Long,
U. S. Senator
Edward Hebert,
M.C. 1st Dis., La
Hale Boggs,
M.C. 2nd Dis., L
Edwin Willis,
M.C., 3rd Dist., L
Overton Brooks,
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Otto Passman,
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Reply to S-3, The Sugar Bulletin.

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ne mills in St. John Parish ground
5,000 tons of sugarcane, produc-
g 47,044,880 pounds of sugar from
e 1949-50 crop, according to a re-
rt received from V. O. Calandro,
rish county agent.

Of the amount ground, approxi-
ately 190,000 tons were harvested
om 10,000 acres grown in the
arish and the remainder came
om neighboring parishes.

The cane, Mr. Calandro said,
elded an average of 159.5 pounds
sugar per ton with an average
crose of 12.26 per cent. Only
ree percent of the cane hauled
the mills was trash.

The average yield per acre of the
ne planted in St. John Parish was
out 19 tons, which is some 3 tons
below the original estimate.

Mr. Calandro pointed out that one of the troubles of the 1949 crop was the cane borer. "It is estimated, Mr. Calandro reports, "that 25 per cent or more of the crop was lost due to borer damage. This was the worst infestation since 1925."

St. Charles Parish. The grinding campaign in St. Charles Parish was completed on December 29th and A. J. Melancon, Jr., County Agent, advises us that the canes averaged about 15 tons to the acre. The sucrose was about 12 per cent and the purity about 75 per cent.

Mr. Melancon estimates that the cane crop in his district was reduced from 5 to 10 per cent by the cane borer.

ROGRESS THROUGH SOIL RESEARCH STRESSED IN BPISAE REPORT

Changes in crop production meth-
ls on American farms resulting
om a modern concept and under-
anding of soils are emphasied in
e annual report of the Bureau
Plant Industry, Soils, and Agri-
ltural Engineering issued recently
the U. S. Department of Agri-
lture. Dr. Robert M. Salter, chief
the Bureau, says that farmers
e rapidly increasing the efficiency
ith which they grow crops through
e use of improved soil manage-
ent methods.

In his report Dr. Salter reviews
e progress of research with soils,
il-crop relationships, and soil-crop-
oisture relationships. He also sum-
arizes progress of the last year on
merous specific research projects
aling with crops and their man-
ement, soil research, and agricul-
ral engineering.

The modern concept of soil, Dr. Salter explains, is founded on the understanding that soil undergoes constant changes—some natural and some man-made. Evolved from fundamental research of the past century, Dr. Salter says, this concept of soil is now becoming generally understood. Coupled with farmers' experiences, it has provided the basis for applied research at the various land-grant colleges and by the Federal Government.

Soil scientists have developed improved methods for managing specific types of soils for the production of specific crops. Plant breeders have adapted crop varieties to thrive under specific soil conditions and to resist soil-borne diseases and insects. Agricultural engineers have devised machines and techniques for soil manipulation under different conditions of climate, topography, and soil type. The Bureau chief says

that more and more farmers are applying this technology to good advantage.

Long-term soil management systems are being worked out for many types of soils that, he says, offer a two-way advantage. Crops can be produced more economically, and at the same time soil productivity can be improved for future use. These improved systems permit abundant crop production on a sustained basis.

Some very stubborn problems have given way, Dr. Salter reports, under the form of science brought to bear on them through understanding of soil-plant inter-relationships that have grown out of the modern concept of soil. In the South, alfalfa can now be grown successfully, tung nuts are becoming an increasingly important commercial crop, and the problems of low corn yields have been cracked.

The role of moisture in crop production, too, is becoming better understood. Although no successful way has yet been found to make it rain, Dr. Salter reports methods being devised to make better use of what nature hands out. He emphasizes the importance of soil and crop practices that conserve moisture and make more efficient use of it. Important facts about soil-crop-moisture an make more efficient use of it. discovered in the dry-land areas of the Great Plains, in the irrigated areas of the West, and even in the humid areas of the East where normal annual rainfall is more than enough for crop production.

Soil research last year revealed that higher corn yields in the South, resulting from improved soil and crop practics, places a heavier drain on moisture supplies. Also that soil productivity in parts of the Great Plains area has declined to a level where the plant-nutrient factor is sometimes more limiting in crop production than the moisture factor.

Dr. Salter's report covers man advances in various fields of experimentation. He describes a new hybrid potato seedling that appear to have complete immunity to lat blight, a new variety of head let tuce especially adapted to growin conditions in the eastern part of th country, and citrus rootstocks resis tant to tristeza disease. He tell about a spray application of boro increasing the set of Anjou pear in the Wenatchee Valley of Wash ington, and improved methods fo curing and canning sweetpotatoe

The Bureau chief reports tha plant breeders, in cooporation wit State workers, have developed ne dwarf-bunt-resistant wheat vari ties, nine new corn hybrids, a ne variety of soybeans better fitted t combine harvesting, a new suga beet variety more resistant to curl top diseases, and two superior vari ties of sugarcane. They have als made advancements toward the d velopment of cotton hybrids, toba co hybrids, and grain sorghum hy brids. Other scientists of the B reau have developed methods to r establish profitable alfalfa seed pr duction in the West.

Engineering phases of the B reau's work that are reported i clude studies to develop equipme for corn and grain conditioning, chemical-type grain and seed drie electric lamps and traps for Eur pean corn borers; lightweight co cretes using corncobs as a fille new type machines for small-sca processing of fruits, vegetable poultry, and meat at locker and cor munity canning plants; and the d sign of 30 different grain stora structures. Other engineering st dies reported compared types shelters for field shade of beef ca tle in a hot climate, and show ho common arrangement faults in dai barns require excess time and labo and that mechanized peanut harves ing can reduce labor requiremen by 69 to 80 percent.

OFFICIAL PRICES 1949-50 SEASON

Printed below is supplement No. No. 15 *to* 1949 *Sugar Mill Letter No. of the Production and Marketing Administration, United States Department of Agriculture. The letter is dated January* 30*th.*

The Louisiana Sugar Exchange, Inc., New Orleans, Louisiana, quotes e following as the official average prices of the following grade of su- r and molasses sold on this exchange during the weeks ending as in- cated.

October	13, 1949,	Raws 96 test 5.95.	Blackstrap Molasses 5.0
October	20, 1949,	Raws 96 test 5.99.	Blackstrap Molasses 5.10
October	27, 1949,	Raws 96 test 6.03.	Blackstrap Molasses 5.425
November	3, 1949,	Raws 96 test 5.98.	Blackstrap Molasses 5.625
November	10, 1949,	Raws 96 test 5.94.	Blackstrap Molasses 5.781
November	17, 1949,	Raws 96 test 5.87.	Blackstrap Molasses 5.875
November	24, 1949,	Raws 96 test 5.85.	Blackstrap Molasses 5.828
December	1, 1949,	Raws 96 test 5.77.	Blackstrap Molasses 5.781
December	8, 1949,	Raws 96 test 5.72.	Blackstrap Molasses 5.788
December	15, 1949,	Raws 96 test 5.73.	Blackstrap Molasses 5.758
December	22, 1949,	Raws 96 test 5.73.	Blackstrap Molasses 5.825
December	29, 1949,	Raws 96 test 5.70.	Blackstrap Molasses 5.781
January	5, 1949,	Raws 96 test 5.64.	Blackstrap Molasses 5.703
January	12, 1949,	Raws 96 test 5.69.	Blackstrap Molasses 5.50
January	19, 1949,	Raws 96 test 5.73.	Blackstrap Molasses 5.721
January	26, 1949,	Raws 96 test 5.77.	Blackstrap Molasses 5.775

The season's average price of raw sugar is 5.8181 cents per pound d the season's average price of blackstrap molasses is 5.6416 cents per llon.

In accordance with the Fair Price Determination there is no molasses nus.

The price of standard sugarcane for mills located in the three freight eas are as follows:

1. 6.012 dollars per ton for mills located north of Bayou Goula between the Atchafalaya and Mississippi Rivers and southeast of New Iberia west of the Atchafalaya.
2. 5.975 dollars per ton for mills located north and west of New Iberia west of the Atchafalaya River.
3. 6.08 dollars per ton for all mills except those in paragraphs 1 and 2 above.

Please prepare Farms SU-128, Growers' Deliveries of Sugarcane, 'ompiled List) in accordance with instructions contained in 1949 Sugar ll Letter No. 9, issued December 29, 1949.

Signed: L. A. Mullin,
Chairman,
State PMA Committee

MINIMUM WAGE REQUIREMENTS FOR 1950-CROP SUGAR BEETS IN CALIFORNIA AND SOUTHWESTERN ARIZON

The U. S. Department of Agriculture announced on January 5th minimum wage requirements for the 1950 crop of sugar beets to be paid by producers in California and southwestern Arizona who apply for payments under the Sugar Act. The minimum time rate for thinning, hoeing, and weeding is 60 cents per hour and for pulling, topping, or loading 65 cents per hour. Piecework rates for these operations are to be as agreed upon between the producer and the worker but the average hourly earnings of indivi ual workers who are employed piecework must be not less th the hourly rates provided for wo on a time basis. In addition to t wage rates provided, the producer required to furnish the labor without charge, the customary pe quisites such as a house, gard plot, and similar items.

The time rates specified are t same as those provided for 194 crop sugar beets. For the 1949 cr uniform specific piecework rates f thinning, hoeing, and weeding we provided but harvesting piecewo rates were as agreed upon by p ducers and workers. With t placing of all piecework on "agreed upon basis for the 19 crop, it is anticipated that produc and workers will be able to ag upon rates which will more acc ately reflect the wide differen in field conditions and product methods than did the uniform pie work rates in effect during p vious crops. As is customary un incentive methods of wage payme agreed upon piecework rates sho return to workers hourly earni considerably in excess of the mi mum time rates established.

The wage determination cus marily announced at this time year for California only has b extended to include southwest Arizona where crop conditions similar to those in the Impe Valley of California.

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CONGRESSMEN WRITE

(Continued from Page 150)

tional raw sugars in order to ma tain their distribution. We are c vinced that if you should choose issue a short statement that have been disappointed by the do ward trend in the raw sugar mar resulting from your estimate,

uld have the immediate effect of nding the price upward between w and February 1st which, un-rtunately, is a very short time. It uld serve to strengthen the deter-nation of raw sugar sellers from areas just as it would weaken e resistance of the refiners and, our opinion, cause them to buy, en at a higher price.

The present situation has been rned to great advantage for the iners. Since the end of Septem-r, the wholesale refined price of gar at New York has been 8.05¢. e price of raw sugar was 6.05¢ in ptember which, in our opinion, ve a very reasonable refiner's rgin. Although the price of raw gar had declined prior to your imate from 6.05¢ to 5.75¢, and s further declined to 5.65¢ (5.62¢ New Orleans) since your esti-te, the price of refined sugar has nained at 8.05¢. This means a iner's margin of $2.40, which do not believe to be justified. the meantime, the world price of w sugar has continued to rise, un-on January 6th it was $4.52.

Your determination has resulted a windfall to refiners; but the gar farmers and the raw sugar oducers have been harmed great-with no benefit to the consumer. A short statement from you im-diately would strengthen the mar-to an extent which should bring back to the 6¢ or above, though as high as the Sugar Act con-nplates. We believe sincerely that would at least maintain a state of vency in the industry. It must be forgotten that six (6) raw gar mills were closed after the 48 season and did not operate in 49. We fear that as a result of unprofitable operations in 1947 d 1948, and a low price in 1949, er factories will not be able to ntinue unless some evidence of ir intention to maintain them un-the Sugar Act is promptly im-pressed upon the New York market.

In addition, Congress has just passed amendments to the Wage and Hour Act which will mean a minimum wage of 75¢ for all laborers, with semi-skilled and skilled labor increased in proportion. This means added costs on a falling market and makes the future situation even more critical. We, therefore, regard the proposed statement as a temporary expedient and that the whole problem of the domestic cane sugar producers must be reviewed if the industry is to survive.

We propose that all of the problems of the domestic cane industry should be reviewed in the immediate future.

After you have read this letter and you want to confirm our statements about the emergency existing in Louisiana, we trust that you will agree to a discussion of this matter, so vital to our growers and processors, immediately.

Sincerely yours,

(s) Allen J. Ellender
U. S. Senator

(s) Russell B. Long
U. S. Senator

(s) Hale Boggs
Congressman,
1st District of
Louisiana

(s) Edwin E. Willis
Congressman,
3rd District of
Louisiana

P.S. May we call your attention to the statement recently made by Honorable Charles Sawyer, Secretary of Commerce, regarding the critical situation existing today in the Louisiana sugar industry? The statement is contained in a letter Secretary Sawyer wrote to John R. Steelman, Assistant to the President, reporting on business conditions throughout the country. On his survey the Secretary visited all parts of the country where he held an extended series of meetings with

businessmen, labor leaders and public officials. In Appendix D, page 3, he commented as follows:

"A particularly distressing situation called to my attention in Louisiana concerned wage and living standards among workers on sugar plantations. Though the problem involves intricate regulatory activity designed to control imports and maintain domestic production, and though it is greatly complicated by the varying degrees of integration, between the growing, processing and refining functions as they are found in specific companies, there appears to be little question but that because of postwar prices set on raw sugar and the wage payments they make possible, growers and processors are not doing well and that field workers are barely getting a subsistence living. I was told that this year's crop will benefit to some extent from a price increase made by the Department of Agriculture several months ago. However, public officials and labor and religious leaders with whom I talked are extremely anxious to see what price and wage arrangements are effected which will permit growers and processors to operate solvently and provide decent wage and living standards for those who work in the fields."

SECRETARY BRANNAN

(Continued from Page 151)

assured that we will continue to watch the sugar situation carefully.

Sincerely yours,
(s) Charles F. Brannan
Secretary"

"February 3, 1950

Honorable Allen J. Ellender
United States Senate

Dear Senator:

This is in further reply to the letter of January 7, 1950, concerning the sugar consumption requiremer determination for 1950 and curre sugar prices, which was sign jointly by you, Honorable Russell Long, Honorable Hale Boggs a Honorable Edwin E. Willis.

You call attention to the deterr nation made December 22, 1949 t 7,500,000 short tons, raw value, sugar will be needed to meet dom tic consumption requirements in 19 and to the fact that the New Yo duty-paid price of raw sugar f from 5.75 cents per pound December 22 to 5.65 cents on Ja uary 4. On January 11, howev the price had recovered to 5 cents and on January 24 it rose 5.80 cents per pound. The deter nation made December 22 for 19 requirements was exactly the sa as the revised determination ma September 13 for 1949 requiremer On September 13, the price was cents per pound and on Septem 22, nine days after the 7,500,0 ton figure was announced, the pr rose to 6.05 cents per pound, highest it had been since Janu 1948. Moreover, the price remai at 6.05 cents most of the time u the end of October. In Novemb however, the raw sugar price sta ed to weaken, and in the first f days of December it was 5.70 ce per pound.

Although the declines that h ocurred in domestic raw su prices since October have been as ciated with the falling off in su distribution by refiners and ot primary distributors, the declines distribution have not been so dra as to indicate a major falling off annual requirements. Through this period of declining raw su prices, the price of refined su has remained stable at 8.05 ce per pound and the world price raw sugar has risen from 4.15 ce to 4.70 cents per pound. It is fortunate that the decline in dom tic raw sugar prices came ab

he time the Louisiana selling season vas getting under way, and that the ecent recovery came after most of he Louisiana crop was sold.

It is surprising that such widely ifferent price interpretations hould be made of the same determiation of requirements, and particularly that the market would react pward when the determination was nade in September and downward vhen it was repeated in December. The recent 15 point recovery appears to have been a reflection of he entire world sugar situation as vell as an acknowledgement by the narket that 7,500,000 tons will be eeded in 1950.

Sincerely yours,
(s) Charles F. Brannan
Secretary"

GOVERNOR LONG

(Continued from Page 148)

he domestic sugar industry is not eing maintained. I am sure there nust be other segments of the domestic industry which are little, if ny, better off. The price of raw ugar, as low as it is when compared with other commodities, could ncrease materially without affectng the welfare of consumers. Furher, the relationship between the holesale price for refined sugar nd the cost of living index which xisted during the year 1947, prior the termination of price control f sugar, is not being maintained s this section of the Act contemlates. If such price were being naintained today, particularly as to aw sugar, the return from sugar ane and sugar would be such that he Louisiana cane farmers and rocessors would be in a better ecoomic condition.

I call your particular attention to he fact that since the beginning of he 1949 sugar cane harvest season October, the price of raw sugar as fallen from about 6.10 cents per ound to about 5.75 cents. Even duPA controls, since the termination of which all other prices have increased, the price of raw sugar was 6.32 cents. If we may judge the future by the past, the outlook is not bright.

I realize the difficulties of your position. However, may I urge your thorough consideration of this situation which has impressed me with its serious nature, and trust that some action can be taken to remedy it.

Sincerely yours,
Earl K. Long
Governor

CCs: President Truman
Senator Russell B. Long
Senator Allen J. Ellender
Cong. F. Edward Hebert
Cong. Hale Boggs
Cong. Edwin E. Willis
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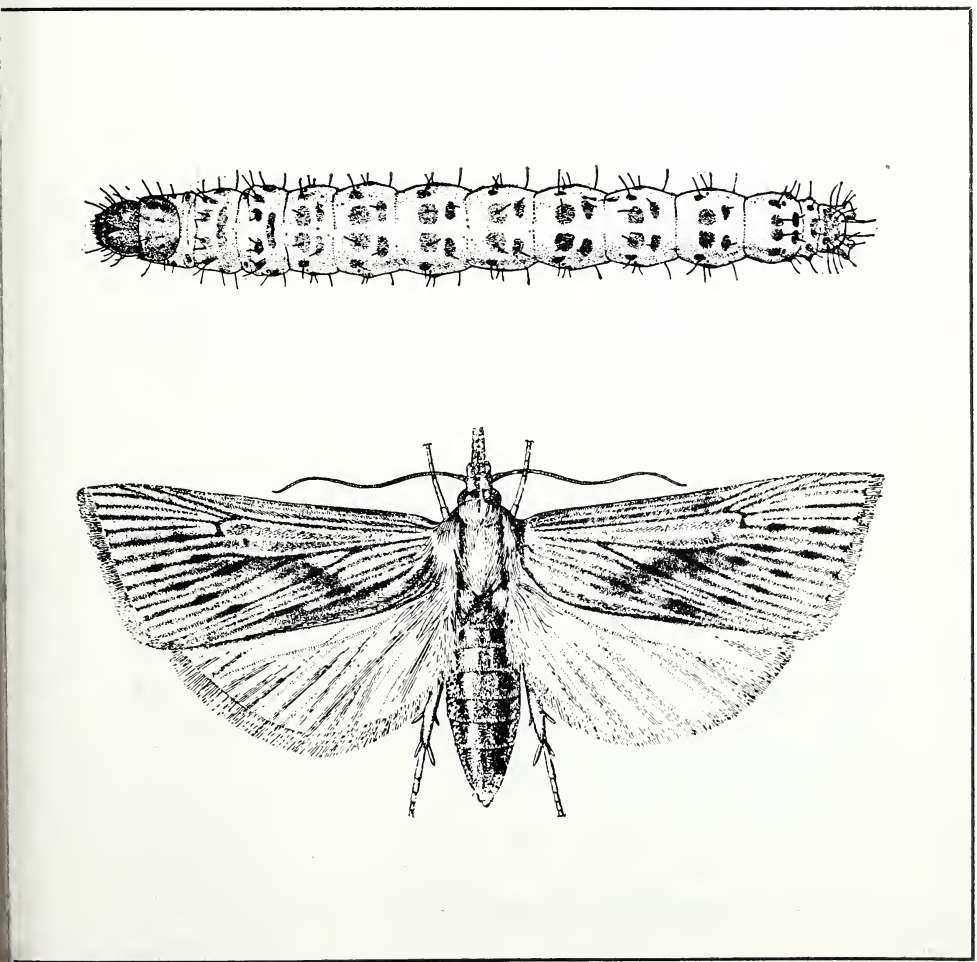

Louisiana's Big Problem, the Cane Borer

THE
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MARCEL J. VOORHIES, Editor

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HE PRESENT STATUS OF THE SUGARCANE BORER IN LOUISIANA AND MEASURES FOR DECREASING LOSSES

By J. W. Ingram, E. K. Bynum, W. E. Haley, and L. J. Charpentier,
U. S. D. A., Agr. Res. Adm., Bureau of Entomology and Plant Quarantine

eason for Heavy Losses in 1949

The loss to the sugarcane crop rom borer injury in 1949 was robably the heaviest since 1925. number of factors contributed to is heavy loss. In the first place ie winter of 1948-49 was one of ie mildest in this century. A sur-ey of 21 representative plantations i the spring of 1949 indicated a inter carry-over of 441 live borers er acre in millable cane left on the eld at harvesttime, as compared ith an average carry-over of only 9 borers per acre in similar ma-erial for the years 1939 to 1948, iclusive. On the basis of examina-ons on 11 plantations, the number f borers found to have overwinter-l in shoots from summer-planted ane in the spring of 1949 was 596 per acre, as compared with an verage of only 749 per acre in ich shoots for the years 1944 to 948, inclusive. The number of orers overwintering in millable ane was thus about five times reater than usual, and the number verwintering in shoots from sum-er-planted cane was about three mes greater. Millable cane left on e field after harvesting and shoots om summer-planted cane are the ief sources of borer moths that lay e eggs for the spring brood of orers in the new crop. The mor-lity of borers in millable cane dur-the mild winter of 1948-49 was ly 7 percent, as compared with 94 rcent during the unusually cold inter of 1947-48. Apparently the fferences in mortality during the o winters was not due to a dif-rence in amount of rainfall, since e rainfall for January, February, d March 1948 was about the same for the same three months in 49.

Another factor that was largely responsible for the heavier borer infestation was the prolonged warm weather in the fall of 1949. Although borers usually become very inactive in the latter part of September and the first part of October, in 1949 they were active and feeding in December. In a usual year there are four or five generations of borers, but in 1949 there were one to two additional generations that continued to cause injury throughout harvest time.

Dusting with cryolite to control borers was also less effective than in any year since 1937, when the Bureau laboratory at Houma, La., and the Louisiana Agricultural Experiment Station began cooperative experiments with this method. There were at least three reasons for this. (1) The borer emerged from winter quarters over a prolonged period, making it so difficult to decide when the peak of infestation was reached that no commercial dusting for the first generation was done, and therefore dusting in 1949 was not done at the most effective time. The second generation, following the pattern of the first, was also unusually prolonged, with corresponding less chance of killing all the borers of this generation by dusting. (2) The borers were so extremely abundant in 1949 that, even with a high kill, a heavy infestation still remained. (3) The borers continued to feed and multiply for a longer period than usual after dusting was completed. The long priod of multiplication and spread was similar to the conditions prevalent in Florida, where we found chemical control of the borer to be of doubtful value.

(Continued on page 171)

RECOMMENDATIONS FOR THE CONTROL OF THE SUGARCANE BORER FOR LOUISIANA IN 1950 BY DUSTING WITH CRYOLITE OR RYANIA[1]

The following recommendations are made for insecticidal control of the sugarcane borer in Louisiana in 1950. They are based on extensive cooperative investigations conducted since 1937. Growers who plan to dust should order a supply of cryolite or ryania at once. Cryolite should be used undiluted and ryania at 40 percent strength.

Either the first or the second generation of borers may be controlled by dusting with cryolite or ryania, and it is seldom necessary to dust the same field for both generations. First-generation borers are those hatching from eggs laid by moths that have come from overwintered larvae. Young borers of this generation usually begin to hatch in large numbers about the middle of April. Small larvae of the second generation usually begin to appear in large numbers about June 10 to 25. Therefore, dusting for first-generation control is generally started about the middle of April and for second generation about the middle of June.

For control of borers on a plantation scale, first-generation dusting is preferable, because it gives a higher kill, prevents an increase and spread of borers into adjoining areas, and is less likely to cause a build up of infestation by the yellow sugarcane aphid. All the cane acreage known to be sufficiently infested should be dusted for first-generation borers. Additional infestations developing later should be controlled by second-generation dusting. Dusting of a small part of a large infested area on a plantation or of a small farm surrounded by infested cane for the control of first-generation borers is not recommended, because of the possibility of reinfestation by later generations from the nearby untreated cane.

The following points are impo tant for successful control of bore of either generation.

1. Start dusting as soon as u hatched and hatching eggs appe in large numbers. First-generatic dusting seems to be justified wh five egg masses are found per ma hour. If you cannot find eggs, cou the leaf signs—small holes in t leaves or scarified spots gnaw by the newly hatched borers—a begin dusting if leaf signs appe in about 30 stools per 600-foot ro Second-generation dusting is just fied if a minimum of 500 de hearts per acre are present. Ev 300 may be sufficient in areas u ually having heavy borer damag In years of heavy infestation, ho ever, dusting is worthwhile in a stubble and summer-planted ca growing in areas usually sufferi heavy borer injury.

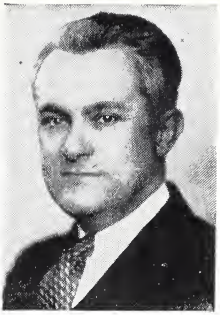
2. Make four applications weekly intervals.

3. Apply the dust at the rate about 10 pounds per acre, while t air is quiet and the plants are w with dew, which is usually betwe 6 p.m. and 9 a.m. A heavier app cation will give better control the second generation and shou prove more profitable where the is a heavy growth of cane or a unusually severe borer infestatio

4. Use an airplane for treati large areas. The width of swa should not be over 36 feet, and t plane should be flown as close the cane as necessary to get a go even distribution of the dust.

5. Use a power dusting machi or rotary hand gun for treati smaller areas. About 10 acres cane can be treated per hour wi a 3-row machine and about 15 acr with a 5-row machine. With a ha

IN WASHINGTON WITH C. J. BOURG



FRED G. TAYLOR, SR.

A heart ailment took the life of red G. Taylor, Sr., in Salt Lake ity, Utah, on February 16, 1950, t the age of 74.

Born on October 9, 1875, he lived n a cattle ranch near Clifton, Ida-o, with his American pioneer fami-. Fred Taylor entered the sugar usiness with the Ogden Sugar Com-any in 1898. He continued with this ompany and its successor, Amalga-ated Sugar Company, over a pe-od of 23 years. He was General anager in the last three years.

Having served under Herbert oover with the Food Administra-on during World War I, he was ssistant Chief of the Sugar Divi-on. He also served with The Su-ar Institute as Executive Secreta-. He later became Vice President of the Utah-Idaho Sugar Company from 1936 until his passing, and was Vice President in charge of the Washington Office of the U. S. Beet Sugar Association in 1944-46.

We knew Fred very well and enjoyed thoroughly working with him in Washington. He was one of the most considerate and Christian gentlemen we have ever known. He believed thoroughly and practiced in a pious manner his principle of the Fatherhood of God and the Brotherhood of Men. Because we enjoyed his confidence and felt the intensity of his religious convictions as he so generously practiced them towards all whom he called "friend," we are much the better for his influence. Mes salutations, cher ami!

---

n one man can dust about 1 acre r hour. Dusting more than 300 res for control of first-generation rers on any one plantation by ound machine is impractical.

6. On ground machines use one or o nozzles to the row. Two nozzles ve some insurance against incom-ete coverage through clogging or splacement of nozzle.

7. The cost of dusting for either neration with either cryolite or ania is estimated at about $7.50 $8 per acre.

Ryania

Over a period of years, a dust ntaining 40 percent of ryania has consistently given a borer control equal to that given by cryolite. It is therefore recommended on the same basis.

Sprays

Although sprays have shown promise, they have not been thoroughly tested and are not recommended.

New Materials

Benzene hexachloride, DDT, chlordane, toxaphene, and parathion are not recommended for borer control.

[1] These recommendations were prepared jointly by C. E. Smith and A. L. Dugas, of the Louisiana Agricultural Experiment Station, and J. W. Ingram and E. K. Bynum of the Bureau of Entomology and Plant Quarantine of the Agricultural Research Administration, United States Department of Agriculture.

A STUDY OF THE FACTORS AFFECTING GROWERS' JUICE SAMPLE

Presented at the Meeting of the Manufacturing Section of the American Society of Sugar Cane Technologists, Houma, La., February 17, 1950

by

W. M. Grayson, Production and Marketing Administration
U. S. Department of Agriculture

Most of you are familiar with the provisions of the Fair Price Determination of 1949 and previous determinations that fix the price to be paid by processors who are also producers for sugarcane purchased from other producers. For the benefit of those who are not directly engaged in the production of sugarcane for sugar I wish to briefly outline some of the provisions of the Determination.

Fair Price Determinations have been issued for each crop since the 1937 Sugar Act was enacted, and through the 1948 crop each of these determinations have approved the basic pricing structure agreed upon by producers and processors. Fair Price Determinations generally have contained the following provisions:

1. The basic price for standard sugarcane was $1.00 per ton for each one cent of the average price of 96 degree sugar when such price was 3½ cents per pound with a maximum of $1.03 per one cent of the price at and above 3¾ cents per pound and adjustments downward to a minimum price of 91 cents per each 1 cent of price at or below 2¾ cents per pound.
2. Settlements were based on the weekly average of the daily prices of 96 degree raw sugar (duty paid basis, delivered), or the season's average of the weekly quotations.
3. Standard sugarcane was defined as sugarcane containing a stated range of sucrose in normal juice with premiums or discounts for sugarcane of higher or lower sucrose content.
4. During the crops of 19 through 1947 weight deductio of trash in excess of 3% we permitted by administrative a tion, and in 1948 the definiti of standard cane was revised provide weight deductions f trash in excess of 3%.
5. Since the 1940 crop, each pri determination has provided f payments to producers equal 50 percent of the proceeds fr blackstrap molasses in excess 8 cents per gallon.
6. Under certain conditions dedu tions were permitted in t price paid for frozen sugarcar

The 1949 Fair Price Determin tion differed from the 1948 Det mination in the following major r spects:

1. The basic price was increas from $1.03 for each one cent the average price of raw sug to $1.045.
2. The definition of standard s garcane was revised to me trash-fee sugarcane with a no mal juice content of 12.0% a a purity of at least 76.5 but r more than 76.99 in the place a stated range of normal ju sucrose alone. Premiums a discounts above and below 1 were provided, as in the pa as were also premiums and d counts for purities above a below normal ranges.
3. The definition of salvage sug cane was revised to include s garcane with normal juice ha

(Continued on page 168)

CA (TRICHLOROACETATE) FOR BERMUDA GRASS AND JOHNSON GRASS CONTROL

W. C. Elder in Farm and Ranch, June 1949, *p* 22
(*From the Quarterly Bulletin of the American Society of Sugar Cane Technologists*)

The new weed control chemical, richloroacetate, will be placed on ne market this year in limited uantities by two chemical companies and possibly others. The Oklhoma Agricultural Experiment tation tested this material in 1947 nd 1948.

Ammonium and sodium forms of CA were applied on Johnson and ermuda grass at monthly intervals uring the growing season at rates f 50, 100, 150 and 200 pounds of ne active ingredient per acre. Johnon grass was treated at several tages of growth, from that closely owed to 24 inches high. Bermuda rass was treated 1 to 2 inches high s found on a mowed lawn. Field rops were planted in the plots at)-day intervals after treatment to neck the length of time the chemil remained in the soil.

Almost complete kills on Bermua grass were received from all apications in 1947 from June to ctober, except in August when it as extremely dry and hot. In 1948, ay and June treatments, even at e higher rates, gave unsatisfacto- kills of Bermuda grass, while ly and August treatments cometely eradicated the grass. Heavy infall which occurred in June and ly 1948, evidently leached the emical out of the soil because all eld crops made normal growth 30 ys after treatment. Thus, the Beruda grass was permitted to revive. nder dry conditions of 1947, field ops would not grow on treated ots for 90 to 100 days after treatent.

The 50 pounds per acre rate was t satisfactory for Johnson grass. ne hundred pounds per acre or ore, when applied at the proper time, gave 90 to 95 percent kills on the grass. Some Johnson grass recovered from all treatments. It seemed that results were best when the grass was 12 to 18 inches tall at the time it was treated.

September and October treatments in 1947 on Bermuda grass gave very good results, while the Johnson grass plots made more recovery for these months than in earlier treatments.

The vegetation of all plants was killed in a few days by the above dosages. However, many perennial weeds such as ragweeds and bull nettles quickly sent up new growth and made normal growth thereafter.

Twenty-five pounds per acre was effective against annual grasses such as sandburs, crabgrass and foxtails.

The cost of this material is $50 to $60 per acre at the present time. Therefore, it is likely that only small areas of Johnson grass and Bermuda grass will be treated. Probably the greatest value of TCA at present is around the home where Bermuda lawns are spreading to flower beds and gardens. Or it might be used for very small spots of Bermuda and Johnson grass in cultivated fields.

Small Johnson grass spots in alfalfa fields are a major weed problem in Oklahoma, especially where alfalfa seed is harvested. Some investigators report that old stands of alfalfa will recover from TCA treatment. The Oklahoma station does not have sufficient information to recommend this practice, but suggests that a few spots be tried in alfalfa fields.

TCA will kill all plant vegetation

(Continued on page 170)

JUICE SAMPLES

(Continued from page 166)

ing less than 9.5% sucrose or purity less than 68.0, and the price for such cane was that agreed upon between the producer and processor.

4. Trash was defined to include green or dry leaves which may be removed with a cane knife in a manner similar to hand stripping under field conditions, loose sugarcane tops, attached sugarcane tops at or above the green leaf roll, dirt and all other extraneous material. The 3% trash tolerance was eliminated from the determination.
5. The molasses payment provision was revised to permit participation by producers above 6 cents per gallon instead of 8 cents per gallon as in previous determinations.
6. Mills located in high cost freight districts were permitted to make reductions from the average price of raw sugar for the higher cost of shipping raw sugar to New Orleans from such districts.
7. Deductions permitted because of acidity of frozen sugarcane were revised to make allowance for changes in the normal acidity of the varieties currently being grown and harvested.
8. Sucrose and purity tests were to be made on the basis of trash-free cane and in an acceptable manner.
9. Allowances made to producers for transporting sugarcane from the customary delivery point to the mill were to be continued, but not in excess of the actual cost or rates charged by a commercial carrier for the customary method of transportation.
10. Authority was provided for the sharing of the actual cost of field inspection of trash determinations under certain con tions.

In general, the chief objecti of the 1949 Determination was provide a mechanism through whi producers would be paid a pri based on the quality of sugarca delivered. To accomplish this t basic pricing factor for fresh cle sugarcane of standard quality w increased to $1.045, premiums we provided for sugarcane of high than standard quality and discou provided for sugarcane of low than standard quality. By so doi it was hoped that improvement the quality of the sugarcane del ered would provide higher profits producers and that settlemer would more accurately reflect t milling value of sugarcane.

As pointed out above, for ma years settlement for sugarcane Louisiana has been on the basis the percentage of sucrose in norm juice, and during the 1949 cr on both normal juice sucrose a purity of trash-free sugarcane. Al since conditional payments un the provisions of the Sugar Act 1948 are made on the basis of n mal juice sucrose on trash-free s garcane, it is most important th sampling of producers sugarcane adequate and that all sucrose a purity tests be accurately made. T factors that affect the final resu are many and varied and sho be thoroughly understood by p ducer and processor.

Most everybody connected w the Louisiana sugar industry und stands that normal juice brix a sucrose are derived figures. Th are not obtained by direct analy but by the application of cert well understood factors. If the f tors are correctly obtained and t analyses of the juices from the sa ple mill are correctly carried o there is little possibility of error the final result. On the other ha unless careful attention is given

ll details in connection with tests f sugarcane deliveries, there is pos-ibility of injustices being done.

Normal juice (Cane Sugar Hand-ook, Spencer-Meade, Seventh Edi-ion) is defined as "the juice ex-racted by dry milling, i.e., milling ithout saturation of the bagasse." ince this is rarely, if ever, carried ut in actual practice, the calcula-ion of normal juice is made from ne density of the crusher juice and ne purity of the mixed or diluted uice. A factor is calculated from ne density of the crusher juice and nat of the mixed juices obtained n dry milling when no maceration ater is used. This factor is applied o the brix of the crusher juice to scertain the brix of the normal uice. Example:

Crusher juice brix 16.50
Mixed juice brix 16.0

$$\frac{16.0}{16.5} = 0.97 \text{ dry milling factor}$$

The brix of the normal juice mul-plied by the purity of the mixed uice gives the sucrose of the nor-al juice. The dry milling factor used every day during the crop until a change is suggested by rcumstances, and it is the basis for l calculations of the daily factory erage normal juice brix and su-ose.

When sugarcane is washed before illing, and on rainy days, the usher juice is diluted and, there-re, the density is not truly repre-ntative. Under these conditions, e brix of the crusher juice must so be calculated. This is done by aking comparative analyses of mple mill juice and crusher juice dry cane. A run should be made er not less than a six-hour pe-od, preferably twelve hours, at e beginning of the crop under nor-al milling conditions and the fac-r computed from the result. Con-nuous sampling of the crusher ice and sample mill juice from e same sugarcane being ground on e big mill should provide a proper basis for comparison. Once estab-lished, the daily average brix of all sample mill tests divided by the fac-tor will give the true brix of the crusher juice for the day when cane is washed. This corrected crusher juice brix multiplied by the dry milling factor will give the brix of the normal juice.

The daily factory average normal juice brix and sucrose is the basis for all calculations of normal juice brix and sucrose of producers sugar-cane deliveries, and unless this has been properly determined and this normal juice is derived from the same sugarcane tested on the sam-ple mill (or crusher) for the account of the producer during the same twelve or twenty-four hour period, the brix and sucrose factors derived therefrom will not be truly applica-ble.

Now, a word about brix and su-crose factors to be applied to pro-ducer's tests in order to arrive at normal juice brix, sucrose and puri-ty. If the test is made on the crush-er juice sample, the problem is com-paratively simple, provided the cane is dry, that is, not washed or rained on. The factors for converting crusher juice to normal juice are obtained from the previous day's daily factory average. For example,

Crusher juice Brix 16.40 Suc. 12.80 Purity 78.05
Normal juice Brix 15.91 Suc. 12.22 Purity 76.81

Brix factor $\frac{15.91}{16.40} = .97$

Sucrose factor $\frac{12.22}{12.80} = .9547$

When a sample mill is used for testing producers' sugarcane, the problem is not quite so simple since the sampling procedure is more com-plicated. Fundamentally, the princi-pal is the same. The simple or weighted average of all tests made on the sample mill in any given period is compared with the normal juice brix and sucrose of the factory averages during the same period. Example:

Normal juice (factory average)
Brix 15.91 Sucrose 12.22 Purity 76.81
Sample mill juice
Brix 16.70 Sucrose 13.72 Purity 82.16

$$\text{Brix factor } \frac{15.91}{16.70} = .9527$$

The above factors obtained for the preceding twenty-four hour period are applied to all individual tests on the sample mill the succeeding day. The simple average may be used when there are a large number of tests made during the day or when each test represents a proportionate part of the total cane delivered. When there are only a comparatively few shippers, it is better to use the weighted average of tests in arriving at the factors, otherwise the tests of large shippers may have too great an influence on the tests of small ones.

A summary of all tests of producers' sugarcane made by mills during the 1949 crop has recently been compiled in the State Office of the Production and Marketing Administration for the purpose of ascertaining the degree of accuracy of the system used in arriving at the fair normal juice sucrose and purity of individual growers. These records of thousands of tests were broken down into the same groups as those used in the recapitulation of final manufacturing reports. The simple average of all tests by mills is compared with the weighted average obtained from the final factory run reports in Table I below.

Table I

	Crusher Juice		Normal Juice	
	Brix	Sucrose	Brix	Sucrose
Group I & II				
Simple average	16.76	13.13	16.28	12.44
Weighted average	16.37	12.72	15.85	12.11
Group III				
Simple average	16.75	13.23	16.25	12.49
Weighted average	16.70	13.14	16.22	12.54
Group IV				
Simple average	16.95	13.19	16.50	12.60
Weighted average	16.78	13.00	16.34	12.49
Group V				
Simple average	16.66	12.99	16.24	12.35
Weighted average	16.66	12.98	16.19	12.37
State Average				
Simple average	16.66	13.02	16.21	12.36
Weighted average	16.66	12.98	16.19	12.37

In the above table it is seen that there is very close agreement between normal juice brix and sucro arrived at by the methods used by t mills in sampling and testing gro ers' sugarcane. Group I and II we further apart than any of the ot ers, but this group was compos of only five small mills and the d crepancy favored the producers every instance. The State avera was almost identical with th shown on the recapitulation whi speaks well for the system.

This article will be completed the March 15th issue of The Sug Bulletin.

IT'S A GOOD BET IT WON'T FREEZE

Statistics from the New Orlea Weather Bureau show that sin 1900 freezing temperatures ha been experienced in New Orlea only five times in March. March t 10th is the latest date on which freeze has occurred here in any ye this century.

TCA

(Continued from page 167)

above ground, but it sterilizes t soil for only a short time, which an outstanding advantage ov many other soil sterilants. Whe long sterilization is possible, or sired, such as in a fence row, dium chlorate is recommended.

If possible, TCA should be appli on a moist soil followed by a mi mum rainfall. It seems now th June and July are good months treat Johnson grass, and that Ju (and August and September wh there is moisture) is best for B muda grass. Johnson grass shou be 12 to 18 inches high and Berm da grass 1 to 2 inches high at t time of treatment. A 3-gallon kna sack sprayer is recommended spot applications.

Since only small areas will treated with TCA at the prese time, dosages will be given on t

uare rod basis. These can be con-rted to the acre basis as follows:

1/2 pound per square rod=80 unds per acre

2/3 pound per square rod=106 unds per acre

1 pound per square rod=160 unds per acre.

For Bermuda grass, use 1/2 to /3 pound of TCA active ingredient 1/2 to 1 gallon of water and ray uniformly over one square rod 16½ by 16½ ft.)

For Johnson grass use 2/3 to 1 und of TCA in 1/2 to 1 gallon of ater per square rod.

Kansas State Experiment Station ports good kills of prickly pear ctus with ECA at the rate of 1/2 3/4 pound per gallon of water oroughly sprayed on the plants. Kansas Circular 255).

For annual grasses use 1/8 to /4 pound of TCA to the square d. This chemical may cause the in to peel off hands if they come contact with the spray material. It may be a little corrosive to ray equipment.

It is effective on annual weeds d perennial grasses but not on st perennial broadleaf weeds such bindweeds.

Don't treat soil where tree or rub roots are growing.

TCA is not supposed to be poison-s or inflammable, but be sure to llow directions on containers.

Soil must be moist for TCA to effective, but it leaches rapidly excessive moisture.

Re-treatment may be necessary r Johnson grass and possibly for rmuda grass. However, intensive ltivation forty to sixty days after eatment may be sufficient for mplete eradication.

Much more experimental work is cessary before all the possibili-s, limitations and best methods using this new chemical for weed ntrol can be established.

PRESENT STATUS

(Continued from page 163)

Borer Infestation in 1950

Should we have another warm winter, such as in 1948-49, the 1950 infestation will undoubtedly be heavy. With normally cold weather during January and February, however, the infestation in 1950 will probably be lighter than in 1949, although it will most likely be heavier than usual. On the credit side of the ledger, a smaller quantity of millable cane was left in most fields last fall than during the wet harvesting season of 1948. However, the smaller amount of millable cane left in the field during the 1949 harvest was more heavily infested than that left after the 1948 harvest. The largest amount of millable cane was usually left in the most heavily infested fields, because stalks broken from borer injury prevented clean harvesting. Millable cane left on the field during harvest is by far the principal source of borer moths to lay eggs on the young cane the following spring.

Control Recommendations

The following control recommendations are based on several years research, during which their soundness has been proved on commercial plantations:

1. *Clean up all pieces of millable cane during harvesting operations, to eliminate the borers that would overwinter therein.* Cane trash left in the field after harvesting is the most important source of borer infestation in the new growth of cane the next spring. In practical field tests conducted by the Bureau laboratory, a special scrapping crew picked enough millable cane behind the loader to pay for the operation, in addition to the great value of eliminating the borers it contained.
2. *Thoroughly burn the cane trash left in the field after harvesting, as soon as it is dry.* This

practice not only kills some borers in the trash but also leaves the live borers in pieces of cane with less protection and therefore more subject to winter killing.

3. *During the winter cut and burn all large grasses in which borers might hibernate in and around fields.* Usually the number of borers overwintering in such material is small, but the elimination of this additional source of infestation is worthwhile.

4 *Cut lower when harvesting cane, to decrease the number of borers overwintering in the stubs.* Although the number of borers overwintering in stubs is small, as compared with the number overwintering in millable cane, the additional yield obtained by lower cutting would alone justify this practice.

5 *Shave summer-planted cane late in February or early in March, plow the shoots under in the middles to prevent moth emergence from them, and do not uncover them until as late in May as possible.* Field experiments have shown this to be the best method of destroying the borers overwintering in shoots of summer-planted cane. These shoots become jointed and fibrous before growth stops in the fall and give the borers more protection from freezes than do the shoots from fall-planted cane, in which very few borers are ordinarily able to survive the winter.

6. *Before the last of February plow under all cane stubble that is not to be kept for cane.* Borer moths cannot emerge from the pieces of millable cane in which they are overwintering if this cane is covered with a few inches of soil.

7. *In stubble to be retained, plow under trash in the middles as soon as possible, and not later than February.* The trash a millable cane in the midd should be allowed to rem covered as long as practi cultivation will permit—up the end of May if possible. T soil covering the trash will p vent many moths from esc ing.

8. *Select seed cane free from b ers, when possible, to obtain better stand and to decrease t number of borers overwinteri in planted canes.* It is oft the practice to select the po est cane for planting and send the best cane to the m in order to increase the sug yield. The use of heavily bor cane for planting has often sulted in poor stands and creased yields in both the pla cane and stubble-cane yea Many of the eyes on heav infested cane are killed direc by the borer. Furthermo bored seed cane gives optim conditions for the developme of red rot, which destroys oth eyes. Borer injury and dise reduce the reserve food sup of the good eyes, and pla coming from those eyes m not have sufficient vitality reach the surface of the grou or may be unhealthy and slo growing. For these reasons, t most lightly infested cane tainable of the desired varie should be selected for seed.

9. *Cut off and destroy dead hear beginning late in April or ea in May and twice again at day intervals.* This practice desirable on as large an a as the supply of dependab labor will permit, and especia on small heavily infested p tions of the plantation. It w a fairly common practice bef the cost of labor became high. Cut off the injured ca shoots below the end of t borer tunnels, so that the larv

or pupae will be included in the cut portions. Burn the dead hearts thoroughly with oil or otherwise treat them to destroy the borers they contain. About 90 percent of all first-generation borers in a field can be destroyed by cutting off dead hearts. This method gives about the same control as dusting the cane with cryolite for first-generation borers. However, this practice is not recommended for the control of later generations, because only a few of the later borers are destroyed in this way. Second-generation borers do not usually cause typical dead hearts, although they sometimes kill tops in jointed plants.

Control borers with cryolite or a dust containing 40 *percent Ryania.* When properly done, dusting with cryolite will usually give 85 to 90 percent control of first-generation borers, and 50 percent control or better of the second generation. In trials during the last 5 years a dust containing 40 percent of Ryania has consistently been equal to cryolite in borer control. It is therefore recommended on the same basis. In using cryolite or Ryania make four applications at weekly intervals to keep the plants dusted while the borers are hatching. Make the first application when the hatching becomes general. This is usually in April for the first generation and in June for the second. Apply the dust early in the morning while the air is quiet and the plants are wet with dew. Use 8 pounds of cryolite or a dust containing 40 percent Ryania per acre per application for first-generation control if applying it with ground equipment and 10 pounds if applying it by airplane. For second-generation control, use 10 pounds per acre per application.

As stated in joint recommendations drawn up by the Bureau laboratory at Houma and the Louisiana Agricultural Experiment Station, dusting with cryolite or Ryania is recommended for the control of first-generation borers (1) over an entire plantation, (2) on heavily infested areas from which there may be a substantial spread of borer moths into adadjoining areas, and (3) on smaller areas of localized infestation. Dusting to control the second generation is recommended for fields not previously dusted for control of the first generation, and for entire plan-

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tations or small areas where there is danger of reinfestation from adjacent untreated cane. The amount of dusting necessary will depend on the borer population that overwinters, which in turn depends mainly on the minimum temperatures reached during the winter.

The dusting program to control first-generation borers would be more successful if the cane trash could be covered in the middles in February and not uncovered until late in April. The borer moths would then emerge at more nearly the same time and the period during which the new generation of borers would be hatching on the leaves would be shortened. Four applications of cryolite or Ryania at weekly intervals would then be sufficient. In recent years more trash and millable cane have been left u covered in many fields duri March, April, and May th formerly. The moth emerger and egg-laying period have th been prolonged and control first-generation borers wi cryolite or Ryania has be made more difficult. It wou be even better to leave the tra covered until the last of Ma to decrease the number moths emerging from it, if tl delay does not too greatly int fere with cultivation.

Recent Research Findings

The Bureau of Entomology a Plant Quarantine is conducting full program of research on sug gane borer control at its Houn La., laboratory and at the sublabo tory at Belle Glade, Fla. Studies develop chemical, cultural, variet and biological control measures a being continued as in the past.

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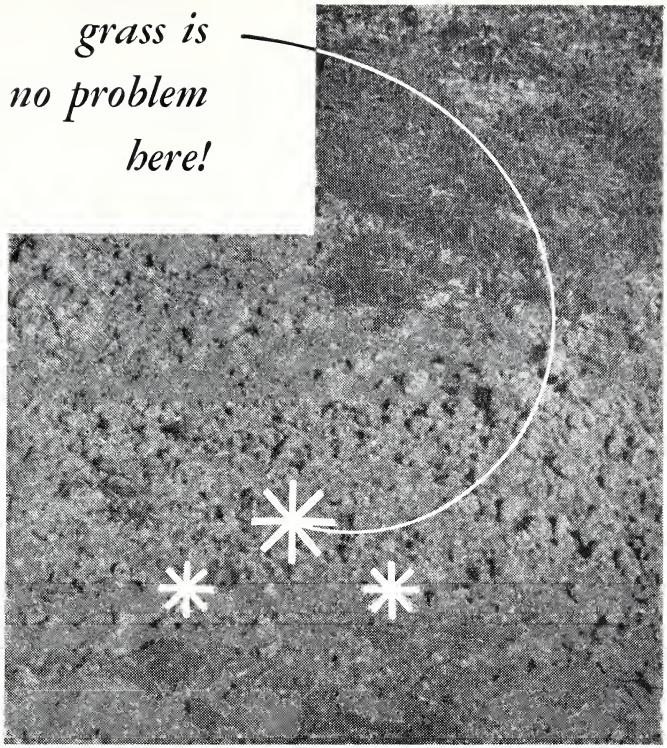

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THE SUGAR BULLETIN

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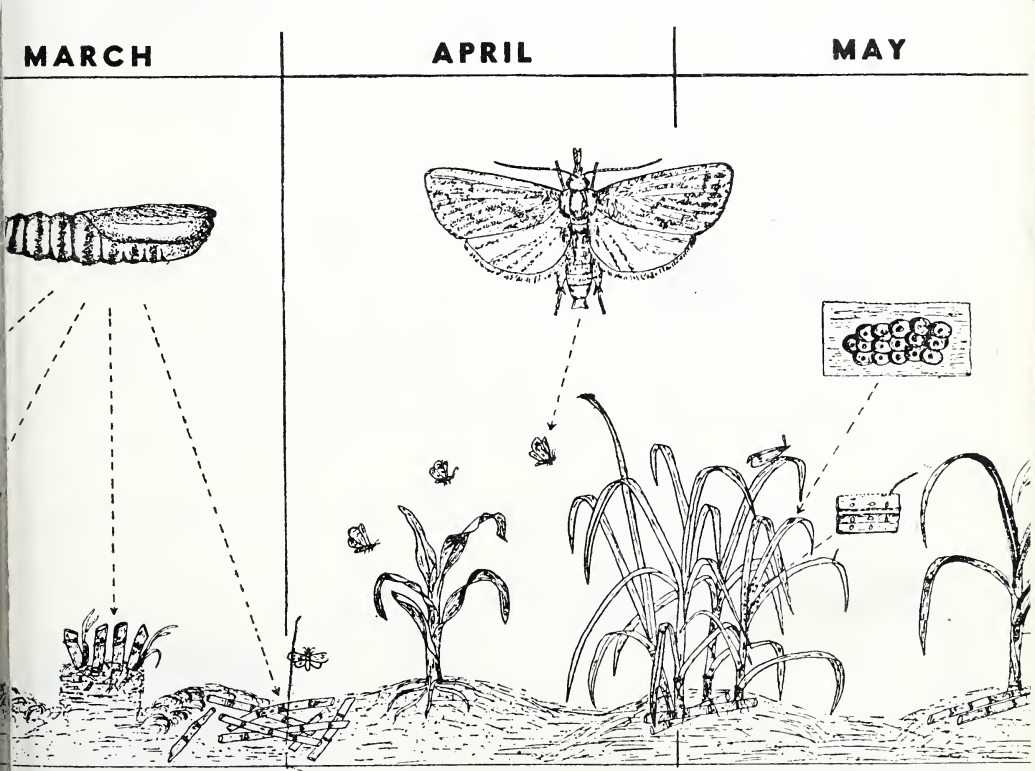

r transforms to pupa, or
t; stage, in overwinter-
aterial.

Moths emerge and lay eggs on young corn and cane for first generation. Leaf perforations soon appear.

(3) *Dust cane with cryolite.*

Result of first generation in jury is a dead heart or dyin of the plant.

(4) *Cut out or rogue dead hearts.*

(5) *Cut out and destroy heav ily infested early corn.*

Spring Cycle of the Cane Borer

DAVE BERGERON
ENOLA
PLANTATION
NAPOLEONVILLE, LOUISIANA

MY SUGAR CANE YIELD
HAS INCREASED from 14 to 30
TONS PER ACRE IN PLANT CANE---
SINCE I LICKED JOHNSON GRASS

Mr. Bergeron's Problem 3 Years Ago. Notice Heavy Johnson Grass growth

Mr. Bergeron's cane field today after 3 years of cultural and chemical weed control. Notice clean field, free of Johnson Grass

Valois Weed Sprayer—Similar to one used by Mr. Bergeron

Three years ago Johnson Grass had about put me out of the sugar cane business. I then began practicing the recommendations of the Assumption Farm Supplies & Chemicals Co. on Johnson Grass and other grass and weed control. I fallow plowed, sprayed Sodium Chlorate on ditches and sprayed 2-4-D on cane with a Valois Weed Sprayer, and rogued out the few remaining Johnson Grass plants. As a result my cane yield has more than doubled. Today, from the results I am getting, I feel sure that I can completely destroy Johnson Grass off my farm by religiously following this program. Cane farmers are welcome to visit my farm to see the results I am getting.

Dave Bergeron

ASSUMPTION FARM SUPPLIES & CHEMICALS CO. NAPOLEONVILLE, LA.

Please send me complete information on how I can lick Johnson Grass in my Cane Acreage.

NAME _____

ADDRESS _____

ASSUMPTION FARM SUPPLIES
AND CHEMICALS COMPANY
NAPOLEONVILLE, LA.

For Complete information mail this coupon to the Assumption Farm Supplies & Chem. Co. Write your name and address plainly

THE
SUGAR BULLETIN

414 Whitney Bldg., New Orleans 12

MARCEL J. VOORHIES, Editor

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REFINED SUGAR PRICES—1900-1949
Net Cash At New York

Year	High	Low	Yearly Average	Fluctuation Between High & Low
		(In cents per pound)		
1949*___	7.938	7.595	7.814	.343
1948*___	8.232	7.301	7.577	.931
1947*___	8.232	7.840	8.124	.392
1946*___	7.840	5.390	6.343	2.450
1945*___	5.390	5.390	5.390	-----
1944*___	5.488	5.390	5.456	.098
1943*___	5.488	5.488	5.488	-----
1942*___	5.488	5.145	5.448	.343
1941*___	5.243	4.312	4.922	.931
1940*___	4.606	4.263	4.337	.343
1939*___	5.635	4.214	4.572	1.421
1938*___	4.655	4.214	4.481	.441
1937___	5.047*	4.410	4.729	.637
1936___	4.900	4.312	4.691	.588
1935*___	5.194	4.165	4.851	1.029
1934___	4.655*	4.018	4.423	.637
1933___	4.606	3.822	4.316	.784
1932___	4.165	3.626	3.990	.539
1931___	4.655	4.116	4.430	.539
1930___	4.998	4.263	4.624	.735
1929___	5.390	4.655	5.032	.735
1928___	5.929	4.998	5.524	.931
1927___	6.223	5.488	5.794	.735
1926___	6.174	4.802	5.463	1.372
1925___	6.615	4.900	5.448	1.715
1924___	8.722	6.174	7.312	2.548
1923___	9.800	6.370	8.408	3.430
1922___	6.958	4.704	5.930	2.254
1921___	8.085	4.704	6.190	3.381
1920___	25.970	7.742	15.250	18.228
1919___	14.896	8.820	8.995	6.076
1918___	8.820	7.301	7.834	1.519
1917___	8.330	6.615	7.663	1.715
1916___	7.497	5.635	6.862	1.862
1915___	6.027	4.704	5.559	1.323
1914___	7.350	3.675	4.683	3.675
1913___	4.802	3.920	4.278	.882
1912___	5.684	4.802	5.041	.882
1911___	6.615	4.550	5.345	2.065
1910___	5.200	4.550	4.972	.650
1909___	5.000	4.300	4.765	.700
1908___	5.350	4.500	4.957	.850
1907___	4.850	4.500	4.649	.350
1906___	4.750	4.300	4.515	.450
1905___	6.000	4.350	5.256	1.650
1904___	5.600	4.260	4.772	1.340
1903___	4.900	4.260	4.638	.640
1902___	4.700	4.210	4.455	.490
1901___	5.340	4.370	5.050	.970
1900___	5.890	4.750	5.320	1.140

* Includes tax of .535 cent.

Under the Jones-Costigan Act, a processing tax of .535 cent per pound was instituted on June 8, 1934 and was eliminated on January 6, 1936 by U. S. Supreme Court decision. Under the Sugar Act of 1937, a tax of .535 cent per pound became effective on September 1, 1937, and continued by the Sugar Act of 1948.

The figures below give the highs, lows, etc., for 1934 to 1949 inclusive, net cash at New York excluding tax.

Year	High	Low	Yearly Average	Fluctuation Between High & Low
		(In cents per pound)		
1949___	7.403	7.060	7.279	.343
1948___	7.697	6.766	7.042	.931
1947___	7.697	7.305	7.589	.392
1946___	7.305	4.855	5.808	2.450
1945___	4.855	4.855	4.855	-----
1944___	4.953	4.855	4.921	.098
1943___	4.953	4.953	4.953	-----
1942___	4.953	4.610	4.913	.343
1941___	4.708	3.777	4.387	.931
1940___	4.071	3.728	3.802	.343
1939___	5.100	3.679	4.037	1.421
1938___	4.120	3.679	3.946	.441
1937___	4.900	4.120	4.551	.780
1936___	4.900	4.312	4.691	.588
1935___	4.659	3.630	4.316	1.029
1934___	4.410	3.679	4.123	.731

RAW SUGAR PRICES—1900-1949
C. I. F. Basis* at New York
(Excluding Duty)

Year	High	Low	Yearly Average	Fluctuation Between High & Low
		(In cents per pound)		
1949*___	5.55	5.05	5.307	.500
1948*___	5.30(a)	4.50	5.045	.800
1947*___	5.473	5.413	5.458	.060
1946*___	5.275	4.025	4.610(b)	1.250
1945___	3.44	2.99	3.422	.450
1944___	2.99	2.99	2.993	-----
1943___	2.99	2.99	2.990	-----
1942___	2.99	2.60	2.988	.390
1941___	2.90	2.00	2.478	.900
1940___	2.05	1.71	1.886	.340
1939___	2.95	1.40	1.905	1.550
1938___	2.35	1.75	2.036	.600
1937___	3.05	2.25	2.543	.800
1936___	3.00	2.20	2.694	.800
1935___	2.75	1.82	2.331	.930
1934___	2.185	.70	1.499	1.485
1933___	1.65	.65	1.220	1.000
1932___	1.20	.57	.930	.630
1931___	1.55	1.09	1.333	.460
1930___	2.063	1.04	1.471	1.023
1929___	2.313	1.688	1.993	.625
1928___	2.875	2.00	2.434	.875
1927___	3.50	2.625	2.948	.875
1926___	3.375	2.156	2.565	1.219
1925___	3.063	1.938	2.565	1.125
1924___	5.625	2.813	4.174	2.812
1923___	6.625	3.25	5.278	3.375
1922___	4.00	1.813	3.005	2.187
1921___	5.25	1.813	3.364	3.437
1920___	22.50	3.625	11.350	18.875
1919___	12.50	5.88	6.650	6.620
1918___	5.88	4.985	5.487	.895
1917___	6.50	3.813	5.217	2 687
1916___	5.625	3.350	4.778	2.125
1915___	4.19	2.625	3.593	1.565
1914___	5.50	1.875	2.830	3.625
1913___	2.44	1.875	2.164	.565
1912___	3.44	2.41	2.865	1.030
1911___	4.60	2.06	3.031	2.540
1910___	3.09	2.44	2.850	.650
1909___	3.09	2.25	2.649	.840
1908___	3.125	2.31	2.716	.815
1907___	2.59	2.03	2.401	.560
1906___	2.73	2.00	2.338	.730
1905___	3.875	2.06	2.930	1.815
1904___	3.50	1.97	2.622	1.530
1903___	2.225	1.815	2.068	.410
1902___	2.31	1.565	1.857	.745
1901___	2.687	1.97	2.364	.717
1900___	3.315	2.565	2.881	.750

* Starting with 1946, the quotations are on C. I. F. basis; prior to 1946, the quotations are on C. & F. basis. (Insurance approximates .01 cent pe pound).

(a) During the early part of January, 1948, th Commodity Credit Corporation was delivering, unde its contract with refiners, raw sugars at 6.32 cent duty paid basis, equivalent to 5.82 cents C. I. F. basis That quotation, however, was not the quotation i the free market.

(b) Based on actual price paid Cuba by Commod ity Credit Corporation plus actual freight and in surance.

OMPARISON OF RYANIA AND CRYOLITE FOR CONTROL OF THE SUGARCANE BORER IN LOUISIANA

By J. W. Ingram and E. K. Bynum
U. S. D. A., Agr. Res. Adm.,
Bureau of Entomology and Plant Quarantine

The U. S. Bureau of Entomology nd Plant Quarantine and the ouisiana Agricultural Experiment tation recommend either undiluted ryolite or a dust containing 40 ercent of ryania for control of ne sugarcane borer in 1950. Cryote has been recommended for genral use prior to this year but yania has not. The question may ell arise as to the comparative alue of these two insecticides as orer controls.

Ryania is an insecticide derived om the ground stem and roots of group of plants of the same name rowing in the northern part of outh America and in Trinidad. The rincipal source of ryania is the lant *Ryania speciosa*. This material also used for the control of the uropean corn borer and some oth- insects. The first tests of ryania the Houma Laboratory for the ntrol of the sugarcane borer were ade in 1945. Since that time it has en extensively tested against this sect in both small and large plots eated by airplane at various times the year. This insecticide was mpared with undiluted cryolite in l experiments. The results of these periments are summarized herein.

Control of first-generation borers.—In 11 small-plot experiments on ntrol of first-generation borers in pril and May, cryolite dust gave an erage control of 81 percent and dust containing 40 percent of ania gave 80 percent control. Cryite gave the best control in six these experiments, and 40-per-nt ryania gave the best control in e other five experiments. In two rge-acreage airplane dusting exriments cryolite gave slightly bet- borer control than ryania. At rvesttime a somewhat lower percentage of joints had been bored in the plots dusted with cryolite than in those dusted with ryania, but the yield of sugar was 111 pounds per acre greater in the plots treated with ryania.

In seven experiments conducted in early fall to prevent infestation by fourth- and fifth-generation borers in shoots from cane planted the previous summer, at which time the plants were of about the size of those dusted for control of first-generation borers, cryolite gave 71 percent and 40-percent ryania 74 percent control.

Control of second-generation borers.—In four small-plot experiments with second-generation borers cryolite gave 71 percent control, and 40-percent ryania 81 percent.

In five large-acreage airplane dusting experiments, the average proportion of joints bored within about one month after treatment was 9.2 percent in the plots dusted with cryolite and 9.5 percent in those dusted with ryania. At harvesttime the average proportion of joints bored was 18.4 percent in the cryolite-dusted plots and 19.6 percent in those dusted with ryania. Yields of sugar in four of the experiments averaged 3,608 pounds per acre from the cryolite-dusted plots and 3,535 pounds from the ryania-dusted plots.

Experiments with other concentrations of ryania.—In two experiments on first-generation borers, with four applications at weekly intervals cryolite gave 90 percent and a 25-percent ryania gave 80 percent control, and with three applications at 10-day intervals 50-percent ryania gave 83 percent control. Against second-generation bor-

(Continued on page 189)

A STUDY OF THE FACTORS AFFECTING GROWERS' JUICE SAMPLE

Presented at the Meeting of the Manufacturing Section of the American Society of Sugar Cane Technologists, Houma, La., February 17, 1950

by

W. M. Grayson, Production and Marketing Administration
U. S. Department of Agriculture

(Continued from March 1st Issue)

Since brix factors and sucrose factors were computed in exactly the same manner and there would be no particular advantage in discussing both, for the sake of simplicity, sucrose factors only will be considered at this time. Also, since the conversion of crusher juice sucrose to normal juice sucrose offers no particular problem, except in a general way and where cane is washed (which has already been discussed), comment will be limited to sample mill tests and the factors that affect growers' juice samples.

Contact Committee Meets March 22nd and 23rd

The Contact Committee of the American Sugar Cane League will hold its meeting at Louisiana State University on March 22 and 23. Reports on work done during the last year will be presented by all departments doing research on sugar cane.

Sugar planters and others who are interested are invited to attend this meeting which will be held in the new Agronomy and Horticulture Building (across the street from the Agricultural Center) beginning at 10:00 A.M.

Table II shows comparative values of crusher juice sucrose, normal juice sucrose, and sample mill juice sucrose, and the conversion factors for the same, of the forty-seven mills using sample mill tests for determining normal juice sucrose from individual producers' sugarcane. Th factors have been arranged in th order of their numerical value fro lowest to highest and are divide into series of ten (seven in the la group) to compare the relationsh between the factors, sample m tests, and normal juice sucrose.

Table II

Comparative Values of Individual Mills

Mill No.	Crusher Juice Sucrose		Normal Juice Sucrose		Sample Mill Sucrose		Sucrose Factors	
1	13.45		12.68		15.82		80.15	
2	12.38		11.62		13.91		83.53	
3	12.96		12.21		14.61		83.57	
4	12.96		12.20		14.55		83.94	
5	12.71		11.92		14.20		83.95	
6	12.92		12.30		14.63		84.06	
7	12.80		12.07		14.34		84.22	
8	12.99		12.24		14.50		84.38	
9	12.86		12.07		14.30		84.41	
10	12.73	12.88	12.11	12.14	14.34	14.52	84.47	83
11	13.10		12.20		14.42		84.64	
12	13.10		12.42		14.61		85.01	
13	13.53		12.89		15.13		85.13	
14	13.40		12.56		14.74		85.32	
15	12.75		12.09		14.12		85.61	
16	12.82		12.25		14.31		85.62	
17	13.19		12.49		14.55		85.84	
18	13.39		12.74		14.84		85.91	
19	13.02		12.34		14.34		86.05	
20	12.76	13.11	12.00	12.40	13.95	14.50	86.08	85
21	13.10		12.42		14.42		86.18	
22	12.51		11.84		13.72		86.28	
23	13.47		12.88		14.89		86.50	
24	13.71		12.81		14.74		86.86	
25	13.11		12.33		14.19		86.89	
26	13.14		12.27		14.12		86.90	
27	13.53		12.59		14.43		87.28	
28	13.75		13.03		14.93		87.31	
29	12.33		11.75		13.43		87.46	
30	13.29	13.19	12.66	12.46	14.45	14.33	87.62	86
31	13.08		12.48		14.23		87.68	
32	13.25		12.53		14.29		87.72	
33	13.13		12.84		14.56		88.18	
34	13.12		12.53		14.16		88.41	
35	13.03		12.41		14.03		88.51	
36	13.57		12.76		14.42		88.53	
37	13.25		12.69		14.33		88.59	
38	12.79		12.25		13.85		88.65	
39	14.08		13.35		15.04		88.76	
40	13.25	13.26	12.43	12.63	13.98	14.29	88.90	88
41	12.50		11.91		13.37		89.06	
42	13.12		12.38		13.83		89.49	
43	13.83		13.09		14.63		89.50	
44	13.19		12.68		14.14		89.62	
45	13.06		12.55		13.94		90.06	
46	13.64		13.10		14.44		90.72	
47	13.27	13.23	12.60	12.62	13.81	14.02	91.26	89
Total	13.13		12.44		14.35		86.70	
State Avg.	12.98		12.37		14.27		86.71	

s coincidental that the crusher uice sucrose increases from 12.88 o 13.26%. The normal juice su- rose likewise increases as would be xpected. From this one might think hat the sample mill sucrose con- ent would also increase. This is ot the case, although the factor oes increase to maintain the rela- ionship. If the factor were con- tant, then the sample mill test ould have to show a higher sucrose ontent. However, since this is not o, some sample mills must be more fficient than others or the quan- ity of cane per sample ground is ot sufficient to give good extrac- ion. A study of the sample mills n use in 1949 bears out this fact. n those factories where the sample ill was equipped to put pressure n the top roll, where the grooving as in good shape, where sufficient ower was provided to mill a size- ble sample and a fair quantity of ane was milled at one time, the fac- rs were higher and more uniform rom day to day.

A further study of the factors mputed from daily averages of a ample of ten mills selected at ran- om shows considerable variation rom day to day and from week to eek. The latter is less pronounced ut considerable nevertheless. The udy covers a period of six weeks eginning when the crop was well arted and ending six weeks later efore any of the mills in the group osed down.

Table III shows a comparison of ie weekly average of each of the ten mills above and the weekly va- riation of each mill from November 5, 1949, to December 10, 1949, in- clusive. Weekly factors varied from a minimum of 2.02% to a maximum of 6.03%, with the average 3.70%. Factors were generally low at the start before the cane reached ma- turity, but were fairly stable after three weeks. However, it is quite apparent that improvement can be shown if better control of sampling, milling, and testing is adhered to.

The following factors have a de- cided influence on the determina- tion of normal juice sucrose and purity of individual growers' sam- ples:

1. Determination of the daily fac- tory average crusher juice and normal juice brix and sucrose. Since these are basic, unless the sampling, preservation and test- ing of these juices are careful- ly and properly done, the fac- tors which are related to them cannot be correct.
2. Efficiency of the sample mill equipment.
3. Proper sampling of sugarcane.
4. Correlation of cane sampled to cane ground on factory mill.
5. Proper taking and preservation of sample mill juice.
6. Proper analysis of sample mill juice.
7. Washing cane and rainy weath- er.
8. Delivery time factor.
9. Quality and age of administra- tion sugarcane.

(Continued on page 189)

Table III
Comparison of Sucrose Factors of Ten Louisiana Mills

eek Ending	Mill No.	1	2	3	4	5	6	7	8	9	10	Weekly Average of 10 Mills
v. 5	Sucrose factor	85.99	88.61	82.88	88.47	85.03	87.36	89.71	87.41	82.78	81.38	85.96
v. 12	" "	87.71	89.39	82.91	89.95	87.89	87.61	88.18	86.24	85.59	79.93	86.54
v. 19	" "	88.32	89.27	85.56	90.86	88.24	89.26	87.59	87.87	86.32	78.80	87.21
v. 26	" "	90.34	90.63	81.18	89.25	89.20	86.93	87.36	88.02	88.81	81.04	87.28
c. 3	" "	89.63	89.71	82.48	90.48	90.99	87.42	84.97	87.62	86.44	80.59	87.03
c. 10	" "	88.47	88.84	86.16	91.34	90.55	86.20	86.04	88.56	85.53	79.17	87.09
Weeks verage	" "	88.41	89.41	83.53	90.06	88.65	87.46	87.31	87.62	85.91	80.15	86.85
ximum ariation	" "	2.42	2.02	4.98	2.86	5.96	3.06	4.74	2.32	6.03	2.58	3.70

POTENTIAL BY-PRODUCTS OF RAW CANE SUGAR MANUFACTURI

By L. F. Martin, Head
Agricultural Chemical Research Division [2]

Presented at the Annual Meeting of the American Society of Sugar Cane Technologists, Houma, Louisiana, February 17, 1950

When I received Mr. Littell's invitation to discuss the subject of by-products of raw cane sugar manufacture I hesitated for some time before accepting, and I approach the subject with a becoming and justifiable feeling of awe and trepidation. This is a subject upon which so much has already been written and said, that I wondered if it would be possible to add anything that could be new or significant. There has been, in fact, not only a great deal said about the by products of cane sugar manufacture but a great deal has been done about them, as attested by the industrial developments based upon the utilization of sugar cane bagasse. Long before the term chemurgy was coined, the established manufacture of insulating board from bagasse by the Celotex Company was an outstanding chemurgic development. Prior even to this, the commercial manufacture of sugarcane wax had been demonstrated to be economically feasible under conditions where competition with carnauba and other natural waves at abnormally low prices did not have to be met. Later came the manufacture of moulding plastics from bagasse by the Valite Corporation, to which my good friend the late Director of the Southern Regional Research Laboratory, Mr. D. F. J. Lynch, made no small contribution through his efforts at the Agricultural Residues Laboratory at Ames, Iowa, based on his previous experimentation on the recovery of alpha cellulose from bagasse in Hawaii. Bagasse, like cottonseed, oat hulls, and some other agricultural residues, has the advantage of being collected at central points incidental to the utilization of the crop fro which it is produced and it is n surprising that it should have r ceived attention and been put ear to various industrial uses. Besid all that has been written of the byproducts, countless papers ha appeared perennially pointing o the potentialities of cane sugar a source of still other byproducts.

Having accepted the invitation speak I feel that it is incumbe upon me to survey more the bypr duct potentialities of sugar ca with consideration primarily for t crop as produced and manufactur into sugar in Louisiana. From th viewpoint it is evident that the su ject has by no means been exhaus ed. Particularly when the magn tude of the quantities of materi involved are considered, the ne for many more varied and extensi byproduct developments is apparen To see the picture clearly as a who it is necessary to consider the co position of the more than five m lion tons of cane brought annual to the mills for processing, and th is possible with the aid of the r capitulation of final reports pr pared by Mr. Grayson of Productio and Marketing Administration published in the special issue of t Sugar Bulletin for August 15, 194 The latest figures available a from reports for the 1948 crop processed by 59 Louisiana sug mills. The data for that season considered in arriving at the fi ures shown in Table 1. Any b products must necessarily be cons tituents of the cane delivered to t mills, or products produced by the chemical conversion. The tab shows the amounts of all of the

Table 1. Average Composition of Materials Obtained in Processing a Ton of Sugar Cane in 1948 Crop. (Based on Recapitulation of Final Reports)

Cane	1	Ton					
Fiber	299	lbs.	—Bagasse	648 lbs.	—(Fiber	299	lbs.
					(Non-sucrose	10	
					(Sucrose	19.9	
Sucrose	191	lbs.	—(Raw sugar	146.2	Sucrose	140.3	
Less undeter.	5.4		(Press cake	91.3	Sucrose	3.8	
	185.6		(Molasses	84.0	—(Sucrose	21.7	
					(Invert	20.0	
Non-sucrose	83	lbs.	—(		(Non-sugar	23.5	
			(		(Acon. Acid	2.0	
				Press cake	— Wax	0.8	
					— Minor const.	0.5	

nstitutents which it is possible to lculate or to estimate from the ctory operating date, other than e average of 1447 pounds of water each ton of cane.

In the 1948 season each ton of ne yielded, on the average, 146.2 unds of 96° raw sugar as the anufactured product of the crop, ntaining 140.3 pounds of sucrose, e balance being moisture and non-crose dry matter of essentially the me composition as the molasses. yproducts must necessarily come om the remainder of the contitu-ts of this cane, of which the larg-t quantity by far was the fiber, nounting to 299 pounds per ton. is of interest to note that almost pounds of sucrose remained in is bagasse and was lost except sofar as it contributed to the fer-ntation necessary to curing of e bagasse fiber which was utilized dustrially. This was only slightly s sucrose than the 21.7 pounds nich remained in the final mo-sses. In addition it can be esti-ated that the molasses contained approximately equal amount of vert sugars, and a total of 25.5 unds of non-sugar solids of which pounds can be estimated as the proximate amount of aconitic acid esent on the basis of recent work this byproduct.

There is no data in the recapitu-on of factory reports or in other rces which can be used to calcu-e the composition of the non-gar solids which accumulate gely in the molasses. The figure 23½ pounds is probably too high because it was arrived at on the basis of the reported volume of 7.15 gallons of final molasses produced per ton of cane, assuming that this was calculated to 80° Brix. On a true solids basis this figure might be considerably reduced but the sucrose figure and the estimated amount of invert would also be altered. From actual average figures on the composition of the bagasse there is almost exactly 10 pounds of non-sucrose solids to be accounted for which must consist largely of invert and soluble ash constitutents. Considering the assumptions which were necessarily made in regard to the estimated amounts of some of the minor non-sugar constituents the total of 65.5 pounds per ton of non-sucrose compares favorably with the 63 pounds estimated from the purity of the normal juice.

In considering potential byproduct values available in the non-sugar constitutents, other than the aconitic acid and wax which are already being recovered to some extent commercially, it can safely be stated in general that they consist principally of potash which is being applied for its fertilizer value, and of the amino acid aspartic which might be recovered if uses are developed for it. In published data on the composition of cane and molasses the total amides and amino acids are calculated in terms of asparagin and aspartic acid so that definite figures on the amount of this particular acid present are not available. There are also present in the molasses organic sugar acids

Table 2. Total Quantities of Materials Produced from 1948 Crop

Cane—5,257,000 Tons			
Products:			
Raw Sugar (96°)	768,000,000 lbs.	Sucrose	738,000,000 lbs.
Molasses	440,000,000 lbs.	—(Sucrose	114,000,000 lbs.
		(Invert	105,000,000 "
		(Non-sugars	123,000,000 "
		(Acon. Acid	10,500,000 "
Bagasse	3,400,000,000 lbs.	—(Fiber	1,570,000,000 "
		(Sucrose	104,000,000 "
		(Non-sucrose sol.	5,250,000 "
Press cake	480,000,000 lbs.	—(Sucrose	20,000,000 "
		(Wax	4,200,000 "
		(Other—sterols, fatty acids, etc.	2,500,000 "
Sucrose Undetermined	28,800,000 lbs.		

and minor amounts of organic decomposition products which are formed as a result of processing and are not present naturally in the cane itself.

Accepting the estimates in Table 1 as the best available for the average composition of sugarcane and its products during the season before last we can readily compute the firgures shown in Table 2.

This table presents the total quantities of the various principal constituents which can be accounted for as they occurred in the sugar, bagasse, filter press cake, and molasses obtained by the processing of the 5¼ million tons of cane produced in the 1948 season. Aside from the 738 million pounds of sucrose contained in the 384 thousand tons of raw sugar manufactured, the amounts shown of the various materials present represent the total potential byproducts of the industry. The most impressive quantity is the more than 1½ billion pounds of bagasse fiber but it has already been pointed out that large industrial developments in the manufacture of insulating board and moulding plastic based on this substance are well established. Research on this fiber as an agricultural residue is a function of the Northern Regional Research Laboratory of our Bureau, and it may only be noted in passing that the existing industrial uses of bagasse do not consume the entire amount available so that there is need f the development of additional us for this fiber.

It will also be noted that the s crose contained in the bagasse a filter press cake together with s crose unaccounted for reaches t impressive total of almost 153 m lion pounds. The unaccounted s crose can hardly be considered ava able for utilization, but that in t bagasse and filter cake is undoul edly accompanied by quantities invert sugar which cannot be es mated from available data, and it regrettable that there does not a pear to be any feasible way of p ting this otherwise lost sugar some use. There is in fact mo sucrose in the bagasse and filt cake than is available in the m lasses for use in feeds and ferme tation processes in which the lat material is now applied.

Taken together the sucrose a invert sugar contained in the m lasses total 219 million pounds a are the second most impress quantity of material available the manufacture of byproducts. T large quantity of sugars does not course find an outlet principally feedstuffs and to a lesser extent alcohol production and edible syru but we are only too well aware the price at which these mark are reached in competition with o er and more profitable uses mer intensive study and investigation perimentally; it is not a sim

e either technically or economical- because of the large volume which ıst be utilized if the industry is realize a substantial benefit. It now receiving attention in the re- wed investigation of the use of uisiana blackstrap in other fer- ntation processes such as the anufacture of citric and lactic ids. It would require a number such applications at increased ld and higher efficiencies of pro- ction to utilize substantially all of is sugar and justify a price for ckstrap which would be profit- le to the sugar industry. To illus- ate this point it has been reported at the total domestic consumption lactic acid amounts to 8 million unds, which could be produced existing fermentation processes om approximately 4% of the su- r in the blackstrap produced an- ully in Louisiana. Even if all of e citric acid currently used, esti- ated at 26 million pounds, were be produced preferably from uisiana blackstrap the demand uld be met by less than 25% of e total molasses sugar content. ere would obviously be plenty of lasses left over for the produc- n of a variety of other products, d the need for research to further h applications along many and ried lines is evident. Another tor on the bright side of the ture is the possibility that re- rch may effect economies in pro- ction and higher yields, thus re- cing the price at which such pro- cts can be sold so that their appli- ions and consumption could be stantially increased. Intensive search along these lines certainly ds forth great pramise of event- ly bringing large returns to the uisiana industry from the utiliza- n of its byproducts.

It has been pointed out repeated- that the sugars contained in ckstrap molasses constitute an remely cheap raw material cost- approximately 1 cent per pound. is is unfortunate since it means simply that molasses is selling at 6 cents or less per gallon, which price is hardly attractive to the industry producing the molasses. If the sugars could be employed for making a variety of useful chemicals the molasses would find an outlet at a price providing profit for the sugar industry while the cost of its sugar content would still be attractive to users of this valuable raw material. An almost unlimited number of compounds are theoretically possible from sucrose or invert sugars as starting material, but unfortunately none of them other than industrial alcohol produced by fermentation are used in volumes comparable even to the production of blackstrap in Louisiana alone. A few other established fermentation products are used in fairly substantial quantities but as previously noted these quantities correspond to but a fraction of the Louisiana molasses production, and there is a choice of competitive raw materials containing sugars for manufacture of these products. It is certain that no one chemical product produced from sugars will solve the molasses utilization problem completely, but intensive research and development of new end uses for those chemicals which might be produced from molasses sugars should open up some of the potentialities of this byproduct of cane sugar manufacture. With almost 130 million pounds of sugars available in molasses it does not appear to be sound economics to invert the sucrose of raw or refined sugar for use as a chemical raw material costing several times as much, if means of using the molasses sugars can be contrived.

Proceeding to some of the minor constituents it will be seen that the quantities potentially available are still quite large. In the 1948 crop there was available an estimated total of about 4 million pounds of recoverable refined sugar cane wax. Along with this wax were very substantial amounts of fatty acids,

higher alcohols, sterols, and similar substances for which uses might conceivably be found at prices attractive to both producer and user. Since the commercial recovery of sugar cane wax has been reestablished in Cuba it remains to be seen whether the market can be maintained and expanded sufficiently to warrant domestic production of this byproduct.

Because of our activities during the past several years in developing the process used for recovery of aconitic acid, it is of particular interest to note that the 1948 crop contained, as a conservative estimate, over 10 million pounds of this byproduct. The future of this development now depends upon expansion of the end uses of this acid and all possible derivatives and other acids such as itaconic, which can be made from it. Improvements must be made in both the recovery and refining process so that the price of refined aconitic acid can be profitably reduced to a point in line with a wider ranger of applications. Production of acid or of equivalent aconitate during 1948 was of the order of 600 thousand pounds, which is little more than 5 percent of the total amount of aconitic acid actually available in the crop. The simple process now in operation is not capable of recovering more than half of the acid in molasses of sufficiently high acid content to be handled by it. Intensive research is in progress on various methods of separating the acid which might make it possible to recover substantially all of it. The outcome of these experiments will determine which if any of these methods will effect the recovery and purification of the acid at a cost which will permit its market price to be such that the total amount potentially available can be consumed.

A variety of organic compounds are present in much smaller amounts than those already considered and further work will be nec sary before it is possible to estim the quantities available with any curacy. Mention has already b made of aspartic cid, which is principal one of several amino ac in sugar cane. Inositol, which some use in limited quantities as antioxidant, is known to be pres in the juice and to be carried i the molasses. If the principal c stituents of the filter press sake a molasses are recovered commerci ly, or converted chemically on commercial scale, it is to be expec that many of these minor chemi constitutents will be incidenta concentrated and that, in time, u will be found for some of them. example of this is the fraction moved in refining crude sugar c wax which contains a variety compounds, and since the mater is collected incidental to the wax fining operation, these compou are conveniently and probably che ly available for any use to wh they may be put.

In summary it may be said t the byproduct possibilities of cane sugar industry here have no means been overlooked, and t there are very impressive industr developments in operation to based upon utilization of the gasse fiber and constituents of molasses, such as aconitic a Many more possibilities remain be explored, and the field is s a fertile one in which additional i portant developments may co dently be expected in the future.

[1] Agricultural Chemical Research Division Contrib No.

[2] Bureau of Agricultural and Industrial Chemistry, cultural Research Administration, U. S. Departme Agriculture.

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JICE SAMPLES

(Continued from page 183)

). Quality and age of cane piled for night or week-end grinding.

It is the opinion of the writer that uch improvement can be made in e use of sample mills to determine rmal juice sucrose and purity of owers' sugarcane and the follow-g suggestions are made as a uni-rm procedure.

. A good sample mill should be employed, one equipped with hydraulics and sufficiently powered to give good extraction.

. Samples of sugarcane should fairly represent the total deliveries of each grower every day. There should be one sample for each ten or fifteen tons of cane ground and where the delivery is less than this amount the sample should be taken of the delivery.

. Where samples are composited in racks, not less than five stalks should be pulled from each bundle. When samples of cane are ground immediately, not less than ten stalks should constitute a sample.

Samples of crusher juice and mixed juice should be taken continuously and tested at least every three hours. Composite samples may deteriorate in warm weather if kept longer even with proper preservatives.

Since growers' cane is generally sampled and tested during the day, factors should be established on a twelve-hour basis, that is, on the cane ground during the same period.

Sugarcane ground on the big mill during periods when no deliveries are being made should not be used in factoring. This includes piled cane and cane stored in cars for overnight or over week-end grinding.

7. When sugarcane is washed or wetted by rain the crusher juice analyses should be adjusted to a dry cane basis.

8. Growers' sample cane should also be dried with a towel or air dried before grinding on the sample mill.

9. Factors should be calculated daily, but it would appear better to use weekly average factors rather than daily ones.

10. Every effort consistent with good practice and economy should be exercised in arriving at a fair and equitable test of all samples, grower and processor.

The writer believes that the results of the past crop fairly represents average conditions, but since an average is a mean proportion, there must be tests below the average as well as test above; therefore, procedures should be adopted that will make the variation so small as to be valueless.

COMPARISON

(Continued from page 181)

ers undiluted ryania gave 80 percent control and cryolite 61 percent. Against third-generation borers, cryolite gave 32 percent and 25-percent ryania 35 percent control. In two experiments conducted in 1945 and 1946, 50-percent ryania gave 86 percent control in September of borers on shoots growing from cane planted the previous August, and cryolite 75 percent. A 5-pound application of undiluted ryania gave only slightly poorer control than the usual 10 pounds of 40-percent ryania against first-generaeration borers and somewhat better control against the second-generation borers. In the hope of re-

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ducing the cost or control wi ryania, a dust containing a ryan extract was tested, but it failed give so good control as a dust co taining the ground material.

Effect on abundance of yellow s garcane aphids. — There is som times a heavy build-up of the y low sugarcane aphid (*Sipha fla* Forbes), after applications of cry lite for control of second-generati borers. In two replicated expe ments in which aphids were abun ant enough to give a good compa son, there were 20 percent mo yellow sugarcane aphids in the pl receiving a 40-percent ryania du and 48 percent more in those dust with cryolite, than in the untreat plots. In an airplane dusting expe ment comparing cryolite and 40-pe cent ryania 27 percent more sug cane aphids developed in the cry lite-treated plots than in the ryani treated plots. Thus it appears fr these three experiments that yell sugarcane aphids will not increa to so great an extent after the u of ryania as they will after the u of cryolite.

Conclusion. — Undiluted cryol dust and a dust containing 40 pe cent of ryania have given practic ly equal control of first- and secon generation sugarcane borers, a the increase in yield of sugar aft their use has been practically t same. No leaf injury has ever be observed on sugarcane after t use of ryania, and very little if a after the use of cryolite in Loui ana. Increase in abundance of y low sugarcane aphids has been l from the use of ryania than fr the use of cryolite. These aphi are usually of little importan however.

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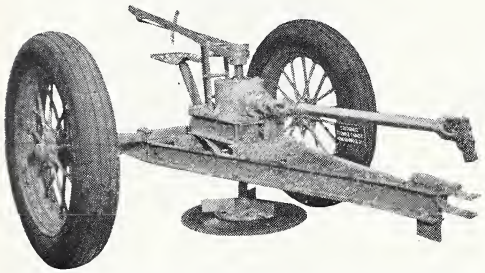

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THE SUGAR BULLETIN

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28 NEW ORLEANS, LA., APRIL 1, 1950 No. 13

NOTICE TO OUR READERS

The Mailing list of THE SUGAR BULLETIN is being revised to include the names of grower members furnished to the American Sugar Cane League by the mills handling cane from the individual shippers during the 1949-50 grinding campaign. Revising this list is a big job and we beg your indulgence until we are able to complete it.

In the meantime if the Bulletin you receive is not properly addressed please drop us a line advising us of your correct address. We will also greatly appreciate it if you will advise anyone that you know who should be receiving THE SUGAR BULLETIN but is not now doing so to send us their name, address, and the name of the mill or mills handling their cane (a 1c postal card will do) and we will immediately begin sending THE SUGAR BULLETIN to them.

The card should be addressed to THE SUGAR BULLETIN, 414 Whitney Building, New Orleans 12, La.

Your cooperation will be sincerely appreciated.

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WASHING OF SUGARCANE IN PREPARATION FOR MILLING

By M. V. Yarbrough, General Manager
Young's Industries, Youngsville, La.
Presented at the Annual Meeting of the American Society of Sugar Cane Technologists, Houma, Louisiana, February 17, 1950

Cane was washed on the main conductor at many Louisiana factories when the production of consumption sugars and molasses was the order of the day. Today in considering the practice of cane washing at that time, four important facts must be borne in mind:

1. All cane was hand cut, hand loaded and well stripped by hand—not burned.
2. Such trash-free and char-free stalks, "clean" by today's standards, were not knifed in the conductor before crushing or milling.
3. Grinding rates of the mills were generally so small that, as compared to current conditions, the layer of stalks in the conductor was relatively thin and/or conductor speeds were relatively slow.
4. The fact that many operators of that time did wash cane indicates that some benefit must have been attributed to the washing of a cane supply already so "clean" as compared to today's deliveries to a Louisiana factory.

The production of higher fibre and harder canes, when the easily milled native canes failed in the fields, necessitated the knifing of the cane before crushing. The installation of revolving knives in and near the base of the main conductor eliminated the possibility of continuing to wash the cane on the inclined portion of the conductors. Thus, for many years after the installation of revolving knives, the practice of washing cane was completely discontinued in Louisiana. During this interval no NECESSITY for washing cane was apparent. The cane was still hand cut and either loaded by hand or with the earlier grab type loaders after piling by hand, nor was the cane yet burned in the fields to remove the leaves. If any real benefit had been obtained from washing of cane on the conductor prior to the installation of revolving knives, that potential benefit still existed during this interval, but knifing of the harder canes was a NECESSITY and washing was not.

Then the development of the cane harvester, the increasing shortage and cost of field labor due to the war, resulting in a rapid increase in the proportion of mechanically harvested cane received at Louisiana factories, combined to place the washing of cane before milling into the category of a NECESSITY, particularly when fields are muddy. As a result cane is again being washed before knifing in many Louisiana factories.

Due to limitations of space in the various factory yards, variations as to methods of cane handling at the various factory yards, variations in the degree of the necessity, if any, for washing of cane and many other governing factors we find many different systems of washing in use today. However these various systems generally all have two things in common:

1. Their development was born of urgent necessity to make capacity operation possible—not primarily to improve operating results by increasing sugar yields and/or reducing operating costs.

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SUGAR ADVISORY COMMITTEE REVIEWS USDA RESEARCH AND SUBMITS RECOMMENDATIONS

New and wider outlets for black-trap molasses and sugar beet tops as live-stock feed are problems most urgently in need of research, according to the Sugar Advisory Committee which functions under authority of the Research and Marketing Act. The Committee met here March 13 and 14 with representatives of the U. S. Department of Agriculture to review the progress of sugar research by the Department and to discuss future work toward the solution of problems now confronting the sugar industry.

Dr. P. V. Cardon, administrator of the Agricultural Research Administration, discussed the over-all administration of the Research and Marketing Act since it was assigned to the ARA administrator's office last August. Progress reports on projects pertinent to the sugar industry were presented by representatives of Department agencies as a basis for new or revised Committee recommendations.

The sugar advisory group generally agreed that all current research on sugar beets and cane should be continued and recommended that the following new lines of work be initiated: Conduct research toward the development of a process for extracting sugar from sugar beets that would be more efficient and economical than the so-called diffusion process now used; determine the effect of constant control of acidity on commercial lactic acid; make studies on the uniformity of sugar quality as a service to the sugar industry; study the need for and methods that would be required in making available to the sugar trade a market news service on the supply and movement of beet and cane molasses; and conduct research on the control of the sugarcane borer in Puerto Rico. The Committee requested the Department to consider the feasibility of studies that would indicate the role of sugar in the diet in relation to tooth decay, and report back to the Committee on it.

Utilization reasearch, now under way, which the Committee feels should be expedited or expanded include the following items: Improve the technology of processing sugarcane and beets both for standard granulated sugar and for special types of sugars and sirups; continue current work in determining the dietary habits of U. S. families with special emphasis on differences between high-, middle-, and low-, income families and the reasons for such differences.

Concerning production research the Committee stressed the need for continuing work on the development of cane and beet varieties adapted to mechanized production with the specific request that the work be extended to cover conditions under which sugarcane is grown in Florida; efforts should be continued to improve and maintain the quality of sugarcane and beets after they are harvested; current work to eliminate trash and foreign matter from sugarcane and beets should be expedited and expanded to all domestic production areas. The Committee reaffirmed previous recommendations about the need for continued research on germination and initial growth of seed, nematode control, weed control, improved insecticides and equipment for applying them, and on the toxicological effects of insecticides, fungicides, and herbicides on animals, plants, and soils.

With regard to marketing, the Committee recommended that work now under way to survey and analyze the sugar marketing structure should be continued in an effort

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DRAINAGE FOR SUGARCANE LAND

by
Irwin L. Saveson, Drainage Engineer
Soil Conservation Service Research, U. S. D. A.

A century of sugarcane farming has changed the land pattern and impaired its surface drainage. The moving of earth from excavating lateral ditches and the operating of the farm equipment in the same direction year after year have made the cultivated part of the sugarcane cuts similar to a saucer. This saucer is surrounded by ditch banks and high headlands, where the implements either have dug holes when they entered the ground or deposited earth when they left the ground. This saucered condition makes the surface drainage difficult and yearly takes its toll in sugarcane production.

The wet field conditions caused by the partial removal of water is inducive to such diseases as red root rot and phytophythora rot. The high potential producing varieties of cane, such as CP-36-13 are very intolerant to wet conditions and are recommended only for well drained sites. Where pockets and holes are located in the field the growth is very small, and often the cane in the entire pocket will perish. Also, the deeper quarter drains interfere with tillage operation. Tractors have difficulty in crossing the drains, and broken axles are not uncommon It is necessary for tractor operators to slow down to cross the quarter drains and to lose considerable time, which in turn increases the cost of field operations.

The Soil Conservation Service Research and the Louisiana Agricultural Experiment Station have been working jointly on this problem for the past six years. This joint undertaking has concentrated on two phases of surface drainage: the grading of land for drainage and the construction and maintenance of lateral ditches.

Grading of Sugarcane Land for Drainage

It was thought that it might be feasible to grade the cuts to solve the deep quarter drain problem It was further conceived that the grading should move the earth from along the lateral ditches to the center of the cuts, at the same time sloping the earth from the center of the cut towards the lateral ditches. The cut would then have a crown similar to a highway and the quarter drain would consist only of an opening through the rows without a channel through the middles (low areas between the rows), where the tractor wheels run. This joint undertaking has developed methods and tested equipment to grade the sugarcane cuts with a crown. This grading is often called turtlebacking. This practice on 105.6 acres of test areas, increased yields 5.84 standard tons of cane and 1267 pounds of sugar per acre. The test areas included plant and first year stubble cane varieties CP 34-12, 29-120, 36-105 and 36-13 on sandy, mixed, and black land. One exceptional test area consisting of 47.2 acres of CP 36-13, averaged 52.49 standard tons of plant cane per acre and 38.74 standard tons of first year stubble cane. This is an average yield of 45.61 tons per acre for the two crops. The plantation's acreage of sugarcane, 1231 acres per year for two years, averaged 25.42 tons per acre. It was further found that the maximum yields were obtained with 13 inches of crown per hundred feet; that the precision with which the grading was done has a definite bearing on yields; and small pockets two inches deep or over should be kept to a minimum. It is almost im

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THE MARKETS

The following report is from the March 6th Market Letter of M. Golodetz & Co., 120 Wall Street, New York, N. Y.

Production in Italy in 1949-1950 reached 500,000 tons of sugar, as against 430,000 tons the previous season. It is not expected that Italy will have to import sugar as the domestic consumption is estimated to equal production. The beet area for 1950-1951 is expected to be increased to 150,000 hectares, compared to 132,000 hectares in 1949.

Turkey has produced this season 149,833 tons of sugar as against 131,224 tons last year. Consumption requirements are not expected to exceed the quantity of 120,000 tons consumed last year.

The final production figure in Denmark is 319,000 tons or about 20% more than last year's figure of 265,032 tons.

The British Board of Trade figures for December and January show the following imports and exports:

December

Imports 202,369 metric tons of raw sugar

Exports 57,663 metric tons of refined sugar

January

Imports 98,245 metric tons of raw sugar

Exports 68,820 metric tons of refined sugar

The Food and Agriculture organization of the United Nations computed some interesting figures of the world production of sugar in 1949-1950, expressed in terms of metric tons, raw value, as follows: Total production 1949-1950 exclusive of the U.S.S.R. is likely to amount to approximately 31.5 million tons. This would mean a slight decline from the old-time record production of 31.9 million tons reached in 1948-1949. On the other hand, the production of the U.S.S.R. is expected to show an increase of 500,000 tons over last year's estimated figure of 6.8 million tons.

The decline in the production in 1949-1950 as compared to the previous year is more significant than appears at first sight. It comes at a time when high levels of national production, employment and income - coupled with the progressive removal of restrictions on consumption - have given an impetus to higher sugar consumption. Furthermore, world population is increasing by approximately 25,000,000 persons a year, or at a rate of slightly more than 1%. Assuming that the population of the world (exclusive of the U.S.S.R.) was approximately 2,175,000,000 in the middle of 1949 and that it will be approximately 2,200,000,000 by the middle of 1950, the availability of sugar per head shows a decline from 14.7 kilograms to 14.3 kilograms, which is still slightly higher than 14.1 kilograms in 1937.

While total production by continents is not likely to show substantial changes as compared with last year, the outlook is entirely different when the situation is examined by countries. In some Europeans countries as, for instance, France, the United Kingdom, Germany and Spain, production in 1949-1950 will be substantially lower; but in Czechoslovakia, Poland, the Netherlands and Belgium, on the other hand, it will be substantially higher. For the continent as a whole, 1949-50 production will be slightly above the prewar average.

Present indications point to the conclusion that supplies and consumption requirements will be in rough balance during the sugar year of 1949-1950. Approximately 9,510,000 metric tons will be available for export from all the producing countries and the import requirements will be about the same, as shown in the following tabulation:

(Continued on Next Page)

Imports	
United Kingdom	1,555
Canada	563
Other British Areas	480
France and Possessions	440
United States	3,300
Germany (Western Zone)	450
Switzerland	170
Other European Countries	628
Japan	300
Pakistan	200
Iran	150
China	100
Iraq	80
Other Asiatic countries	195
South America	351
Africa	120
U.S.S.R.	400
Total	9,482
Exports	
Czechoslovakia	290
Denmark	125
E. Germany	150
Hungary	50
Poland	300
Yugoslavia	25
Cuba	4,700
Dominican Republic	510
Haiti	20
Peru	310
Mexico	80
Other Latin America	20
Philippines	550
Indonesia	50-100
Taiwan (Formosa)	300-350
British Colonies	1,350
Australia	420
Union of South Africa	50
French Colonies	160
Total	9,560

DRAINAGE

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conceivable that two inch pockets would effect a crop grown in rows 18 inches high. Yield data shows a seven ton effect on plant cane and a 3.5 effect of first year stubble cane where 50% of the area was pocketed. This test area covered 12 cuts of 36-13 cane on mixed land.

It is further felt that there is a definite relationship between the precision of grading and the proper amount of slope. It is thought that the slope can be lessened with in creased precision in grading becaus larger slopes tend to offset the re tention of water in pockets. A barrier will cause a larger pond o a flat slope than on a steep one Test areas covering this phase ar under way, which should give mor definite information. However, prob ably on a precision graded cut slope of six inches per 100 feet wi be ample.

The best equipment combinatio for doing the grading work to dat was the bull-dozer and motor grade with the cost of grading rangin from $11.72 to $25.27 per acre depending upon the previous con dition of the land.

At the present time field trial are under way using two othe types of grading equipment. Th four-yard wheel-type scraper i proving to be promising since th cut and distribution of the eart can be very closely controlled. I is more applicable for moving eart considerable distances to fill th pockets. Since precision in gradin has proved to be a basic require ment, field tests have been run als with a small 22 foot land levele the most precise grading tool. A large 48 foot land leveler has bee procured and a number of fiel trials with it are contemplated thi season.

Lateral Ditches

The shortage of labor for clean ing, mowing, and maintaining latera ditches became an acute probler during World War II, since prac tically all of this work was don by hand. Many plantation worker either went into service or migrate to the cities, where they worked i defense plants. The sugar planter brought the problem to the atter tion of everyone having an interes in any phase of the problem, includ ing state and Federal research pec ple and equipment manufacturers To date, two aspects of the probler have been given consideration: th large number of lateral ditche which seemed excessive in som

ses; and the lack of adaptable uipment for cleaning the ditches.

Number of Lateral Ditches

In order to remove the water om the cuts, which have become v in the center, planters have d to split cuts with a second ch. A number of these cuts are w only ten rows wide. This pro-lure increases the number of ches to maintain, and consider-le amount of land is lost for culti-tion. It was thought that by ading, a number of split ditches uld be eliminated, where the cuts narrow. A test area of eight ck land cuts was worked. The ginal cuts were only 13 rows in dth. Six of the cuts were graded d made into three cuts; the other were left as a check area.

The first crop was harvested from s area this year. The cuts showed increase in yield over the check a of 7.01 tons of standard cane acre, and .85 acres, originally in ches, was put under cultivation. e increased yield had an approxi-te value of $49.00 per acre, ereas grading costs were $25.00 acre. The first year's results icate that a number of ditches be eliminated in this way on ilar narrow cuts.

Machines for Cleaning

The most critical aspect of the blem created by the decreasing pply of plantation labor was the ning of lateral ditches. No ade-te machines were available at start of the war for this work. quirements of such a machine are t it must work alongside of or addle the ditch; that it must ce the excavated earth away from lateral ditch bank, preferably the center of the cut and that must be mobile, since the yardage avated is light and requires the chine to be on the move almost stantly.

Both the project and equipment nufacturers have worked on the blem. The project carried on the und work. It experimented with a side arm on a D-4 Caterpillar tractor, equipped with a dragline attachment. A sloping side bucket was also developed. This sloping side bucket has the same shape as the ditch, and one pass of the bucket completely cleans the ditch for the distance it travels.

Manufacturers have used the project's recommendations so far as standards in constructing lateral ditches and placing of the spoil are concerned; moreover they have elaborated and perfected the groundwork. Two manufacturers have developed a light wide-tread dragline which straddles the ditch and proves very satisfactory. They are using the sloping side bucket developed by the project, and three companies are now manufacturing it. There are approximately forty of these machines in the cane area.

The cost of cleaning lateral ditches with a dragline is approximately the same as with hand labor, the main difference being that a better and faster job of cleaning the ditches is done with the dragline. Also, the draglines are being used for hoisting cane during the grinding season, thus further utilizing the investment in the machine.

While the straddle dragline and sloping side bucket combination is the most usable machine to date under Louisiana conditions, the project has experimented also with other types of equipment, such as ditching plows and graders. They do a satisfactory job of ditching under dry conditions but are unusable under wet conditions. Another machine, which is showing promise in project experiments, is a specially equipped wheel trencher, having devices for sloping the bank and spreading the earth.

In summary, it can be said that the work carried on by the joint undertaking of Soil Conservation Service Research and the Louisiana Agricultural Experiment Station has made substantial progress in solving the problem of surface drainage,

created by unusual climatic and soil conditions in Louisiana. In the matter of grading sugarcane land for drainage, it has been estimated by the sugarcane specialist of the Louisiana Extension Service that approximately 70,000 acres have been turtlebacked to date with varying degrees of perfection. New methods of maintaining lateral ditches developed by the project, as discussed in this paper, are also being widely used over the cane area. Continued research will, without question, develop many refinements and more effective and more economical methods.

SUGAR ADVISORY

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to find ways of increasing efficiency and lowering the costs of marketing products of the sugar industry. The Committee also agreed that there is a need for more information on the patterns of use and kinds of sugars used by household consumers, both on a regional and national basis.

Ernest W. Greene, vice president of the Hawaiian Sugar Planters' Association, Washington, D. C., was re-elected chairman of the Committee; Dudley Smith, director of the Association of Sugar Producers of Puerto Rico, Washington, D. C., was re-elected vice-chairman of the group. Two new members, attending for the first time, were Dr. Julia O. Holmes, nutritionist at the University of Massachusetts, and R. H. Cottrell, vice president of the Amalgamated Sugar Company, Ogden, Utah.

WASHING

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2. Results obtained justify their existence and use.

This brief resumé of the history of cane washing in Louisiana gives rise to two fundamental questions:

1. If cane washing were justified prior to the necessity for use of revolving knives in our conductors, bearing in mind t inherent and apparent "cle liness" of such cane, would t practice have continued p fitable during the period wh washing was universally s pended—even though capac operation was possible?
2. Even though capacity ope tion is currently possib washing as we do in rious factories to make so, how can it be determir to what extent better washi or washing of a larger p portion of our factory s plies, would be economica justified and at what c therefor?

If the first question could answered definitely, the ansv would be of assistance in formul ing the answer to the second qu tion which is the only one curre ly of importance. Since such is the case, however, we must l elsewhere for information fr which to attempt to formulate answer to the second question. remainder of this paper is devo to a discussion of the second qu tion:

"Is better washing and/or wa ing of a larger proportion of cane ground by Louisiana factor today economically justifiable an so at what costs?"

There is to this question no sin answer inflexibly applicable to factories. The proper decision each factory must be based on consideration of many factors will invariably be a comprom We will discuss some of these f tors based on our experience washing cane the past two years Youngsville.

1. At the outset, attention is vited to the relative imp ance of any increase in su yield in Louisiana factor One extra pound of sugar ton of cane would increase Industry-wide income in Lo iana nearly twice as much p

centagewise as it would in the case of Cuba, our main foreign competitor in our American market. The same extra pound of sugar per ton of cane would increase the Processor's income in Louisiana approximately three times as much percentagewise as it would in the case of the Processor in Cuba.

Data regarding the results of cane washing and capable of precise numerical evaluation is confined largely to three items of information:

a. Sucrose content, percentagewise only and not quantitatively, of bagasse.
b. Sucrose content, percentagewise only and not quantitatively, of filter mud.
c. Wear on mill rolls.

Such data, collected at Youngsville Factory during the last three seasons, is set for in the attached tabulation.

o facilitate the evaluation of this a, a brief resumé of facts perti- t to the cane supply and wash- equipment at Youngsville Fac- will be helpful. About 45% of total cane ground each day dur- the past four years has been hanically loaded and burned, of the 45% from our own ds, loaded with self-piling load- The other 55% of the cane und each day is hand cut, hand ned, and hand loaded. With a rick on each side of the main e conductor, in order to grind ned cane promptly, all such cane nloaded and stacked by one der- each day and completely ground each night. The hand loaded un- ned cane is unloaded by the other rick, ground all day and a small unt stacked for reserve.

y 1947 it had become entirely r that we must do something to uce the earth content of our me- nically loaded cane before mill- n Annual mill roll wear had ched serious proportions. Mill slippage was so great as to be evident when grinding mechanically loaded cane at night, especially in muddy weather. Night grinding rates were seriously below daytime rates. Factory crews changed at noon and midnight, each crew grinding hand loaded and mechanically loaded cane about half the time, eliminating the human element as contributory. In clarification, the same cycle was completed each 24 hours. At 6:00 P.M. when we started grinding mechanically loaded cane, mud levels in the clarifier would be so low as to permit operation of only ½ of our Oliver. By 6:00 A.M. mud levels would be up into lower trays of clarifier with clear juice outlets from such trays closed, and with both sides of Oliver operating full speed by 8:00 or 9:00 P.M. each night. Then at 5:00 or 6:00 o'clock in the morning with all mechanically loaded cane ground, we would start grinding hand loaded cane. Clarifier mud levels would start dropping. By 3:00 or 4:00 o'clock in the afternoon mud levels would be so low and mud so thin that ½ of the Oliver would have to be stopped. Then at 6:00 P.M. the cycle would start all over again. While never forced to ditch mud, it was too close for comfort every 24 hours and another hundred tons of mechanically loaded cars would have done the trick any day.

With ample yard room available and most of the necessary material on hand, in the summer of 1948 we designed and built a cane wash plant on one side of our yard to handle all mechanically loaded, burned cane. With no space limitation and little limitation because of cash outlay on account of materials on hand, we built equipment which we felt would give us as near a perfect washing job as possible. The benefits derived have far exceeded our expectations. The removal of earth and char is so complete that by appearance of bagasse at fourth mill discharge it is impossible to

be certain whether unburned or burned cane is being ground. Earth is washed from masses of cane and weed roots where harvester blades have gone too deep. Drainage after washing is such that there is no drip at or after the revolving knives. Appearances indicate that we produce less Oliver mud from washed mechanically loaded cane than from hand loaded unwashed cane. How much less, if any, cannot be determined because of the use of a continuous settler. But the extent of sugar removal from Oliver muds from washed and unwashed cane is determinable.

Enthusiastic as I am over the results obtained from washing at Youngsville, I would not recommend that such washing would be universally as beneficial to all factories. We had a certain problem to solve. The necessity for washing might not be as great at other factories, costs of installation because of yard layout might be much higher, to mention but two of the many variables which would require consideration.

However, based on our results at Youngsville, I can and do recommend that the general subject of washing of cane before milling is worthy of very careful consideration by every factory operator in Louisiana. How thoroughly it would be profitable to wash the cane, and what proportion of the total supply it would be profitable to wash are questions the proper answers to which can be determined correctly only by the operators of the various factories.

At Youngsville, I am giving careful consideration to the eventual installation of the same highly efficient wash equipment for washing even our hand loaded unburned cane. I have about reached the conclusion that even such apparently "clean" cane can be very profitably washed. On many occasions we have put such cane through our wash plant and the amount of dirt removed and evident in the wash water is amazing. Attempts to accurately s sample and analyze the wash w run off and calculate suspended ids removed from the cane have sulted thus far, I fear, in fail Results on hand loaded unbur cane range from 0.5% to 4% i cated earth on such cane. I the figures difficult to believe cause of the range. Another y it is hoped a rearrangement of r of wash water from wash equipm to primary sediment sump will able us to collect more represe tive samples of the wash water off.

However, the quantity of ea visible in wash water when wa ing hand loaded unburned cane cause me to attempt some calc tions, the results of which are st ling. Based on perfectly clean c stalks averaging 7/8 inch diame of average specific gravity, th are nearly 2000 square feet of s surface per ton of cane. A "lay of dry earth, or dust, only 0.0 inch thick on the stalks would resent 1% of the weight of the ca Add the extra surface and d collecting power of 2% or leaves, largely sheaths, contained this type of cane, and possibly earth content may be higher t we have formerly thought lik When standing by a feeder table dry weather we all instinctiv turn our heads to avoid the sho of dust that rises when a bundle cane is dropped from the fee table into the cane conductor.

In resumé of the subject of wa ing cane before milling in Lou ana today, I offer the following my present opinions on the s ject:

1. The subject merits care study and consideration any factory grinding cane which one-half, or more, loaded by machine, regard of the type of cane load used or the method of pil the cane in the field for loaders, and whether or no

has ever been necessary to reduce factory operating capacity or ditch juice muds because of field mud and/or char in the cane supply.

Distinction must be made between clarification and filtration difficulties due to excessive quantities of mud arising from the grinding of stale and/or high-topped cane and excessive quantities of nonsettling mud caused by earth and/or char which is susceptible of removal by washing the cane.

Cane cannot generally be properly washed ahead of the knives in the main cane conductor. Not only will much of the total dirt remain in the cane but, based on my experience, losses of sugar in run-off of liquid contained at and behind the knives is too great to be tolerable.

The degree of washing efficiency justified to be sought for depends entirely on local factory of operating conditions and relative cost to provide wash equipment of varying degrees of efficiency.

Very worthwhile washing can be accomplished on some conventional feeder tables. Possible modifications in some tables can greatly improve the efficiency of washing thereon.

Utmost perfection in washing demands installation of wash plant feeder tables capable of:

a. Producing a continuous mat of cane of controllable thickness and with interstices between adjacent stalks to promote good drainage.

b. Permitting wash water to sprayed on the entire surface of each stalk while stalks are rolling and falling into the mat. The rolling and falling of the stalks assist in loosening the mud for removing by the water.

c. Re-compacting the loose mat of washed cane, simultaneously reducing the volume before discharge into the main conductor in order to retain normal operating speed of the main conductor and to "squeeze" the surplus wash water from the mat of washed cane so that drainage will be complete before discharge into the main conductor. Drips and attendant sugar losses at and behind the knives are thus eliminated.

7. Effective washing with drainage completed before the cane is discharged onto the main cane conductor increases the life of the costly main conductor roller chain as compared to convoying "dirty" cane on the main conductor.

8. The water required for effective cane washing can be as little as 10 gallons per ton of cane at 30 pounds pressure with proper mat preparation.

9. Disposal of wash water and earth washed from the cane will probably in most instances be found simpler and less costly than anticipated.

10. The freer the cane from leaves the more rapidly it responds to washing and the less important is the precision of mat preparation.

11. Mill roll slippage and high sucrose extraction are never concurrent during any interval of time, short or long. Presence of mud in the mat of bagasse promotes slippage of both top and bottom rolls against the mat. Slippage between bagasse particles in the mat is desired and is created in the milling process. The resulting friction between bagasse particles breaks juice cells—"grinds" the bagasse; pressure imposed by the mills expresses the juice thus lib-

liberated. The fine clay and silt fractions of soil present in bagasse are always on the surface of the bagasse particles—wet, they are "slick", reducing the desired friction between particles of fibre. Those of us who have tried the settler — mud-back-to-mill processes know what sufficient "lubrication" of bagasse will do to both sucrose extraction and mill roll shells in short order.

12. The preparation of a "fluffy" mat of cane as for perfect washing may, under certain conditions of knifing, in itself greatly improve mill work as it did at Youngsville during 1948, and indicated positively what had been wrong with our knifing job for many years.

13. Removal of mud by washing cars will not necessarily of itself improve extraction, but it will beyond any doubt render improved extraction possible.

14. In all except the most efficient preheated air furnaces even slightly increased amounts of earth in bagasse will severely cripple furnace performance and steaming rates of the boilers from bagasse.

15. While I doubt that the extra filter mud produced by virtue of earth content of juice carries out of process its pro-rata share of the sucrose lost in filter mud, our experience indicates most clearly and decisively that presence of earth in filter mud does render the filter mud less susceptible to washing free of sugar. The less earth in the juice muds, the more readily and completely they wash free of sugar.

16. While at Youngsville we collect fine bagacillo for our Oliver filter mainly from our brating cold juice screens, lowing enormous quantities bagacillo to go as far as vibrating screens by usi 1/8″ diameter holes in the n juice strainer plates at mills, this is not generally practice. Most factories coll fine bagacillo for the their ters from screens in the gasse conductors. We all kn that just when field and c tent of juice calls for m bagacillo from the baga carrier screens, just th less bagacillo comes throu those screens for two reaso The field mud in bagasse h not only, by its effect on m ing, reduced the bagacillo c tent of the bagasse, but sticky damp field mud v also have either partly or co pletely gummed over the ba cillo screens in the baga carriers. Thus cane washi provides double insurance ample bagacillo for Oliver ter operation. It reduces quantity of bagacillo requi and maintains an ample s ply continuously.

17. Even though clarification apparently good, if finely vided earth (all of it top s rich in more or less read soluble plant food minera be heated in the acid fact juice, in Louisiana usually not more than 6.6pH as end point and starting about 5.2pH, and held at above boiling temperature 3 to 4 hours in the clarifi it is inevitable that much m eral matter from the soil v be dissolved in the juice. H much the ash content of juices and syrups may be increased thereby depe solely on the minerals pres in the soil, the fineness division of the soil partic the acidity of the juice,

temperature of the juice and the time under heat in the clarifier. We all know that any such increase in ash will increase the QUANTITY of blackstrap necessarily to be produced. It is quite probable and in fact to be expected, that the nature of some of the minerals thus dissolved from the soil will also reduce the extent of exhaustion of sugar, resulting in the production not only of increased quantities of blackstrap but also in a HIGHER SUGAR CONTENT IN THE INCREASED QUANTITY.

The nature of this subject has de it necessary for me to present atively few facts, many opinions, l for reasons I have tried to out- e, no definite conclusion which ld apply generally to all facto- s. I regret that as yet so few ts capable of measurement and nerical expression are available this subject, possibly of import- e in its bearing on sugar yields our Industry.

t has been a pleasure to prepare s paper and present it to you and hank you for your attention. It hoped that the attention thus used on this subject may result more study and consideration of matter by all of us to the end t more information of a more inite character may be collected made available to the Industry.

ATA PERTINENT TO CANE WASHING AT YOUNGSVILLE FACTORY

E: During the past three crops approximately 45% of the cane ground each day was burned and mechanically loaded, remainder hand cut and hand loaded, not burned.

I. Crop Average Figures

	1947	1948	1949
cane ground per hour	42.31	46.02	53.45
al Juice:—App. sucrose	13.13	11.93	12.76
—App. purity	79.67	76.28	78.86
sse:—% Pol.	3.55	3.40	3.22
% Moisture	50.67	48.08	47.74
Mud—% Pol.	1.70	2.16	2.25

Note: No cane washed in 1947. All mechanically loaded burned cane washed in 1948 AFTER Nov. 15th. All mechanically loaded burned cane washed throughout 1949.

II. Data Secured During 1948 Crop

	Period No. 1	Period No. 2
Tons cane ground per hour	44.40	46.46
Normal juice:—App. sucrose	12.08	12.16
—App. purity	74.29	76.79
Bagasse:—% Pol.	3.38	3.41
—% Moisture	49.04	47.91
Oliver Mud—% Pol.	2.66	1.94

Note: During Period No. 1, prior to November 15 no cane washed. Period No. 2, after November 15 all mechanically loaded burned cane washed.

III. Data Secured During 1948 and 1949 Crops

Comparison of results obtained from grinding unwashed hand loaded, unburned cane each day from 6:00 A. M. to 6:00 P. M. and results from grinding washed, machine-loaded, burned cane each night from 6:00 P. M. to 6:00 A. M.

	1948 Cr after Nov. 15		Whole 1949 Crop	
	6:00 AM to 6:00 PM	6:00 PM to 6:00 AM	6:00 AM to 6:00 PM	6:00 PM to 6:00 AM
Bagasse:—% Pol.	3.51	3.32	3.21	3.23
—% Moisture	48.05	47.70	47.80	47.70
Oliver Mud—% Pol.	2.32	1.60	2.49	1.91

IV. Mill Roll Diameter Reduction, in Inches Each Crop. Expressed in Sixteenths of an Inch

	1947	1948	1949
Total tons cane ground	40,000	64,000	72,000
First mill	9	4	3
Second mill	9	4	4
Third mill	6	7	5
Fourth mill	11	8	5

Note: All rolls in each mill each year trued up to smallest diameter of any roll in the mill before regrooving. The above figures are thus actual maximum wear on rolls in a given mill due to grinding cane.

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THE SUGAR BULLETIN

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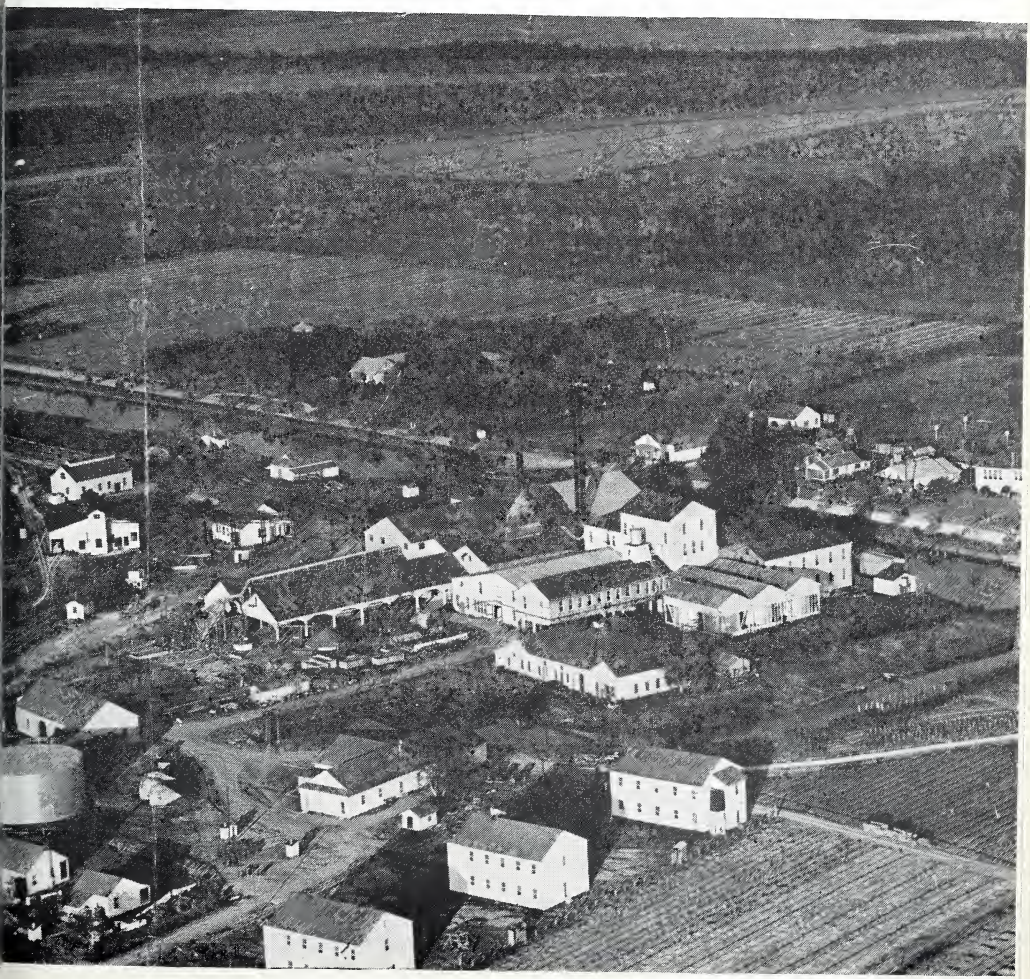
28 NEW ORLEANS, LA., APRIL 15, 1950 No. 14



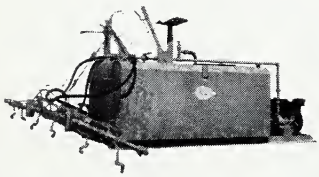
View of a Louisiana Sugar Factory

DAVE BERGERON
ENOLA
PLANTATION
NAPOLEONVILLE, LOUISIANA

MY SUGAR CANE YIELD HAS INCREASED from 14 to 30 TONS PER ACRE IN PLANT CANE--- SINCE I LICKED JOHNSON GRASS

Mr. Bergeron's Problem 3 Years Ago. Notice Heavy Johnson Grass growth

Mr. Bergeron's cane field today after 3 years of cultural and chemical weed control. Notice clean field, free of Johnson Grass



Valois Weed Sprayer—Similar to one used by Mr. Bergeron

Three years ago Johnson Grass had about put me out of the sugar cane business. I then began practicing the recommendations of the Assumption Farm Supplies & Chemicals Co. on Johnson Grass and other grass and weed control. I fallow plowed, sprayed Sodium Chlorate on ditches and sprayed 2-4-D on cane with a Valois Weed Sprayer, and rogued out the few remaining Johnson Grass plants. As a result my cane yield has more than doubled. Today, from the results I am getting, I feel sure that I can completely destroy Johnson Grass off my farm by religiously following this program. Cane farmers are welcome to visit my farm to see the results I am getting.

Dave Bergeron

ASSUMPTION FARM SUPPLIES & CHEMICALS CO. NAPOLEONVILLE, LA.

Please send me complete information on how I can lick Johnson Grass in my Cane Acreage.

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ADDRESS _____

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AND CHEMICALS COMPANY
NAPOLEONVILLE, LA.

For Complete information mail this coupon to the Assumption Farm Supplies & Chem. Co. Write your name and address plainly

THE
SUGAR BULLETIN

414 Whitney Bldg., New Orleans 12

MARCEL J. VOORHIES, Editor

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ANHYDROUS AMMONIA AND OTHER MATERIALS AS A SOURCE OF NITROGEN FOR SUGAR CAN

by
Jack D. DeMent and M. B. Sturgis
Louisiana Agricultural Experiment Station
Presented at Contact Committee Meeting March 22nd and 23rd

The average applications of commercial nitrogen per acre to sugar cane has increased from 32 pounds in 1941 to over 50 pounds in 1949. This increase has been stimulated by the large developments in the production of cheaper sources of nitrogen, particularly anhydrous ammonia and ammonium nitrate. Their use has given excellent results and has compensated in general for the slackening off in the amount of nitrogen being turned in legumes. The use of more commercial nitrogen is also compensating for the increased liberation and loss of humus nitrogen brought about through summer following associated with the control of Johnson grass. Fertilizer trials and experiments are showing that 40 pounds of commercial nitrogen can be profitably applied to plant cane where large amounts of legumes (10 tons or more green weight per acre) have not been turned under. To put it another way, it can be said that unless a planter turns under at least 120 pounds per acre of nitrogen in legumes he will need to add some commercial nitrogen to plant cane. Legume nitrogen may be from 35 to 70 per cent as effective as commercial nitrogen. The tests are also showing that 60 to 80 (to 100 under some conditions) pounds of nitrogen should be applied to stubble cane.

The use of phosphate and potash fertilizers on the heavy soils has not yet been established as good practice, but on soils with medium texture, relative low organic matter content (1.6-2.0 per cent) and shallow topsoil the use of 60 to 80 pounds of nitrogen per acre with 25 to 40 pounds of P_2O_5 and 40 to 60 pounds of K_2O applied to stubble cane is giving good results.

Louisiana is using about 7,5 tons of commercial nitrogen annu ly on sugar cane. If the avera yield of cane were raised to 30 to per acre, and experimental resu show that this could be done, 11,0 tons of commercial nitrogen wou be required if the soil organic ma ter was increased proportionate If the organic matter of these so is not increased, 17,000 tons of co mercial nitrogen would be require With the generally poor physic condition now existing in the so there are limitations on the use nitrogen and the yield of cane. I increasing the depth of the soils a the organic penetration and gran lation more commercial nitrogen c be used effectively.

The two most important ne nitrogen products on the market Louisiana now are ammonia a ammonium nitrate. Out of a tot net supply in the United Stat 955,000 tons of nitrogen, ammon for direct application amounts 45,000 tons per year. Ammoniu nitrate amounts to 134,000 tons nitrogen per year. In Louisian however, ammonia accounts for relatively larger percentage of t nitrogen. Out of a total nitrog consumption of approximately 2 000 tons, ammonia accounts for 500 tons. Ammonium nitrate f direct application exclusive of th in nitrogen solutions, accounts f 7,000 tons of nitrogen. As time go on ammonia and ammonia nitra will continue to be more and mo important as sources of nitrogen Louisiana.

(Continued on page 220)

OUISIANA SUGAR EXCHANGE, INC., HOLDS ANNUAL MEETING

The first annual meeting of the ouisiana Sugar Exchange, Inc., as held in New Orleans on March 0th. At the time of the meeting e Exchange had been functioning r approximately six months since e consolidation of the Cane Proucts Trade Association, Inc., and e Louisiana Sugar & Rice Exange, Inc., resulted in the new orinization on the sixth day of Septmber in 1949.

Mr. George L. Billeaud, of Brousrd, La., who is President of the xchange, presided at the meeting at was surprisingly well atnded by sugar producers, refiners, gar brokers, molasses dealers, nkers, and industrialists all of nom are interested in the success the Louisiana Sugar Exchange.

calling the meeting to order Mr. lleaud expressed his gratitude at eing so many members present d said that it had been a pleasure r him to serve as President durg the first six months of the exence of the Exchange.

Mr. Billeaud reported on some of e accomplishments during the rst six months as follows:

"At the time of the consolidation the Cane Products Trade Associion and the Louisiana Sugar and ce Exchange, the combined memrships of both organizations was proximately 110 of which there us a number of duplications.

Today the Louisiana Sugar Exange, Inc. has 132 members.

All but six Louisiana Sugar Mills e represented in the Exchange. lese include every mill in Ascenn Parish, every mill in Assumpn Parish, every mill in Iberia rish, all but one mill in Iberville rish, every mill in Lafayette Par, every mill in Lafourche Parish, ery mill in Rapides Parish, every ll in St. James Parish, all but e mill in St. John Parish, two mills in St. Martin Parish, all of the mills in St. Mary Parish, all of the mills in Terrebonne Parish and all but one mill in West Baton Rouge Parish.

One mill in Florida is a member of the Exchange.

Every raw sugar broker in New Orleans is a member of the Exchange.

Every refinery in Louisiana is a member of the Exchange.

One refinery in Texas is a member of the Exchange.

One refinery in New York is a member of the Exchange.

Most of the blackstrap molasses dealers are members of the Exchange.

Thirty-three commercial firms are members of the Exchange.

To keep its members posted on the developments in the sugar market, the Exchange subscribes to:

The Sugar Ticker Service of the New York Coffee and Sugar Exchange.

The daily wire service of Willett & Gray, Inc.

The Weekly Statistical Magazine of Willett & Gray, Inc.

A special wire service covering freight rate differentials from James E. Ward & Co.

The Exchange also compiles a record of all of the offshore raw sugars received by the Louisiana refiners and supplies this information to any interested members.

During the past season, two Quotation Committees functioned. These were the Raw Sugar Quotation Committee with Mr. John Levert as Chairman and the Blackstrap Molasses Quotation Committee with Mr. Sidney Menard as Chairman. These Committees met each Thursday throughout the sixteen week

(Continued on page 220)

CROP NEWS BY PARISHES

from

COUNTY AGENTS

In order that the readers of *The Sugar Bulletin* may get some idea of the borer conditions in other sections of the Louisiana sugar district, we have asked our friends, the County Agents, to let us have some information regarding the approximate needs for dusting in their respective parishes.

We requested the Agents to let us know the number of acres in cane and the approximate number that they thought would require dusting and have received the following replies:

Terrebonne Parish. Richard Sonnier, County Agent of Terrebonne Parish, advised us on April 11th that there were approximately 22,000 acres in cane in Terrebonne Parish and that about 4,000 acres should be dusted for borer control. Mr. Sonnier states that the cane crop in his district is looking good at the present time and that the farmers are applying fertilizer.

St. James Parish. On April 10th, Joseph Lamendola reported that there were 20,000 acres in sugarcane in St. James Parish and that a recent survey made by the growers in his district indicated that dusting would be required on about 5,000 acres.

St. Martin Parish. Eighteen thousand acres of land are in cane cultivation in St. Martin Parish, according to our report from Stanley Angelle, County Agent. Mr. Angelle states that 48 farmers have indicated that approximately 2,000 acres would be dusted but he believes that this acreage should drop to between 500 and 800 when the actual infestation counts are made.

Iberia Parish. In Iberia Parish, there are approximately 38,000 acres in cane and W. E. Williams, County Agent, advised us on Ap 10th that between 5,000 and 7,0 of these acres should be dusted f borer control. Mr. Williams repor that field operations in his distri are about two weeks later than w the case last year and probab three weeks behind normal. He sa that the cane is up to a fair to go stand but that a considerable po tion of it has not been worked fertilized as yet. He believes, ho ever, that with good weather t farmers will quickly catch up their field operations.

West Baton Rouge Parish. H. Webb, Assistant County Agent West Baton Rouge Parish, report on April 10th that approximate 8,196 of the 11,599 acres in suga cane cultivation in his distri should be dusted for borer contr this year. Mr. Webb states t sugarcane growers reported la year that 5,000 acres of cane we heavily infested with borers and a parently the infestation is heavi this season.

West Feliciana Parish. Thr thosuand acres in West Felicia Parish are being used for suga cane this year and C. L. Flowe County Agent, estimates that a proximately 2,500 should be dust for borer control.

Avoyelles Parish. Kermit J. D cote, County Agent of Avoyell Parish, estimated on April 10th th of the 3,500 acres of land in ca in his district, 500 acres should dusted for borer control.

St. Mary Parish. There are 3 000 acres of land under sugarca cultivation in St. Mary Parish, a P. J. deGravelles, County Age estimates that approximately 1 000 should be dusted for borer co trol.

DETERMINATION OF SUGAR BEET WAGE RATES

NITED STATES DEPARTMENT OF AGRICULTURE
Production and Marketing Administration
TITLE 7—AGRICULTURE
hapter VIII—Production and Marketing Administration (Sugar Branch), Department of Agriculture
ubchapter H—Determination of Wage Rates
(Sugar Determination 862.2)
art 862 — Sugar Beets; Regions Other Than State of California, Southwestern Arizona, and Southern Oregon.
1950 Crop

The headnote for Part 862 is revised to read as set forth above.

Pursuant to the provisions of section 301 (c) (1) of the Sugar Act of 1948 (herein referred to as "act"), after investigation, and consideration of the evidence obtained at the public hearing held in several cities in the sugar beet area during January 1950, the following determination is hereby issued:

§ 862.2 *Fair and reasonable wage rates for persons employed in the production, cultivation, or harvesting of the* 1950 *crop of sugar beets in regions other than the State of California, southwestern Arizona, and southern Oregon*—(a) *Wage requirements.* The requirements of section 301 (c) (1) of the act shall be deemed to have been met with

Operations	I	II	III	IV		V	VI
	Michigan, Ohio, Indiana, Illinois, Wisconsin	Minnesota, Iowa, eastern North Dakota	Nebraska, Colorado, Kansas, South Dakota, southeastern and eastern Wyoming, east-central Utah, New Mexico, Texas	(A) Northern Wyoming, western North Dakota, Montana (except western)	(B) Western Montana	Southern and eastern Idaho, Utah (except east-central), northern Nevada	Western Idaho, Oregon (except southern), Washington
nning:							
oe and finger thinning fields planted with segmented seed:							
Without machine blocking	$12.00	$13.00	$13.00	$14.00	$13.00	$12.00	$13.00
With machine blocking	10.00	10.00	10.00	11.00	10.00	9.00	10.00
oe thinning, no finger thinning (any type seed)	8.00	8.00	8.00	9.00	8.00	7.00	8.00
ing and weeding (any type ed):							
First hoeing following hoe and finger thinning	4.00	4.50	5.50	6.00	6.00	5.00	6.00
First hoeing following hoe thinning, no finger thinning	5.00	5.50	6 50	7.00	7.00	6.00	7.00
Second and each subsequent hoeing or weeding	2.75	3.50	4.00	4.50	5.50	4.00	5.00

hinning fields planted with whole seed. The basic piecework rate for hoe and finger thinning fields planted with ıral whole seed shall be $2.00 more per acre than the rates specified for hoe and finger thinning fields planted with segted seed.

ide row planting. The above thinning, hoeing and weeding rates may be reduced by not more than the indicated entages for the following row spacings: 28 inches or more but less than 31 inches, 20 percent: 31 inches or more but than 34 inches, 25 percent: 34 inches or more, 30 percent.

ross cultivation. In an instance where cross cultivation is performed prior to hoeing or weeding, the specified first ng rate may be reduced not in excess of $1.00 per acre and the specified subsequent hoeing or weeding rate may be ced not in excess of 50 cents per acre.

ombined operations. Where a written agreement provides for a combined rate for "summer work," the rate for work regardless of the number of hoeings or weedings required, shall be the sum of the applicable thinning, hoeing, weeding rates specified above.

Explanations

oe and finger thinning. Consists of removing excess beet plants from rows by use of a hoe in combination with er work.

egmented seed. Includes seed which has been sheared or which has been graded to pass through a 12/64 inch screen size variations not in excess of 3/64 inch.

achine blocking. The rate for hoe and finger thinning fields planted with segmented seed with machine blocking is icable to fields where the beets have been machine blocked before the plants have passed the 8-leaf stage; where the ks have not been covered with dirt; and where the blocks are not larger than 4″ by 6″; otherwise the "without machine sing" rate applies.

oe thinning, no finger thinning. Applicable where the producer does not require the worker to finger thin because achine blocking, machine thinning, low rate of seeding or other labor saving practice.

respect to the production, cultivation, or harvesting of the 1950 crop of sugar beets in regions other than the State of California, southwestern Arizona, and southern Oregon if the producer complies with the following:

(1) *Wage rates.* All persons employed on the farm, or part of the farm covered by a separate labor agreement, shall have been paid in full for all such work and shall have been paid wages in cash therefor at rates as agreed upon between the producer and the laborer but, after the beginning of work on the 1950 crop or the date of issuance of this determination whichever is later, not less than the following:

(i) *For work performed on a time basis.* (a) Thinning, hoeing, or weeding: 60 cents per hour.

(*b*) Pulling, topping, or loading: 65 cents per hour.

(*c*) For workers between 14 and 16 years of age the rates in (a) and (*b*) of this subdivision may reduced by not more than one-thir Maimum employment for su workers, without deduction fro payments under the act to the pr ducer, is 8 hours per day.

(ii) *For work performed on piecework basis.* (*a*) 1950 bas piecework rates per acre for thi ning hoeing, and weeding by wa districts: (See Table)

(*b*) 1950 basic piecework rat per ton for pulling, topping, a loading by wage districts: (S Table)

(iii) *Work not covered by sp fic rates.* For any work in the pr duction, cultivation, or harvesti of sugar beets for which a tir or piecework rate is not specified this paragraph, such as fertilizir plowing, preparing seedbed, irriga ing, or work in connection with m chanical harvesting, the rate sh be as agreed upon between the pr

Average tons per acre for the farm, or part of the farm covered by a separate labor agreement (to determine applicable rate, round average tonnage to nearest one-tenth ton in Wage District I and to nearest full ton in other wage districts).	I	II	III	IV		V	VI
	Michigan, Ohio, Indiana, Illinois, Wisconsin (pull and top)	Minnesota, Iowa, eastern North Dakota (pull and top)	Nebraska, Colorado, Kansas, South Dakota, southeastern and eastern Wyoming, east-central Utah, New Mexico, Texas (pull and top)	Montana, northern Wyoming, western North Dakota		Southern and eastern Idaho, Utah (except east-central), northern Nevada and load)	Weste Idah Orego (excep souther Washi ton (pu load)
				Pull and top	Pull, top and load		
4	$2.30	$1.80	$1.95	$1.95	$2.35	$2.25	$2.
5	2.15	1.75	1.85	1.85	2.22	2.15	2.
6	2.00	1.70	1.75	1.75	2.10	2.05	2.
7	1.90	1.65	1.70	1.70	2.04	2.00	1.
8	1.80	1.60	1.65	1.65	1.98	1.95	1.
9	1.75	1.55	1.60	1.60	1.92	1.90	1.
10	1.71	1.50	1.55	1.55	1.86	1.85	1.
11	1.67	1.45	1.50	1.50	1.80	1.80	1.
12	1.64	1.40	1.45	1.45	1.74	1.75	1.
13	1.61	1.40	1.42	1.42	1.70	1.70	1.
14	1.59	1.40	1.39	1.39	1.67	1.67	1.
15	1.57	1.40	1.36	1.36	1.63	1.65	1.
16	1.55	1.40	1.33	1.33	1.60	1.64	1.
17	1.55	1.40	1.31	1.31	1.57	1.63	1.
18	1.55	1.40	1.29	1.29	1.55	1.62	1.
19	1.55	1.40	1.27	1.27	1.52	1.61	1.
20 and over	1.55	1.40	1.25	1.25	1.50	1.60	1.
	Minimum wage per acre						
	$9.20	$7.20	$7.80	$7.80	$9.40	$9.00	$8.

Break-down of pulling and topping rate. In instances in which the operations of pulling and topping are perfor by different workers, the above applicable pulling and topping rate shall be divided 35 percent for pulling and 65 per for topping.

Break-down of topping and loading rate. Where loading is not required of the worker who does the pulling topping, the rate for pulling and topping shall be 70 percent of the applicable combined rate for pulling, topping and load except, that if the beets are to be loaded mechanically and the topper is not required to pull beets to provide a place f windrow, the rate for pulling and topping shall be as agreed upon, but not less than 60 percent of the applicable combi rate for pulling, topping and loading.

HEARING SET ON WAGES AND PRICES FOR FLORIDA SUGARCANE

The U. S. Department of Agriculure announced April 7th that, in ccordance with the Sugar Act of 948, a public hearing will be held n wage rates for the period July 1, 950 through June 30, 1951 and on rices for the 1950 crop of sugarane. The hearing will be held on lay 6, 1950, in the Sugarland Park uditorium, Clewiston, Florida beinning at 10:00 a.m.

One of the conditions which prouers must meet to qualify for ayments under the Sugar Act of 948 is to pay wage rates not less han those determined to be fair and reasonable by the Secretary of Agriculture after public hearing and investigation. The Act also provides, as a condition for payment, that processors who are also producers must pay for sugarcane purchased from other producers at prices determined to be fair and reasonable by the Secretary of Agriculture.

In order to obtain the best possible information, the Department requests that all interested persons appear at the hearing to present their views and present appropriate data in regard to wages and prices.

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ucer and laborer.

(b) *Perquisites.* In addition to ie foregoing, the producer shall urnish to the laborer, without harge, the perquisites customarily urnished by him, such as housing, arden plot, and similar items.

(c) *Subterfuge.* The producer hall not reduce the wage rates to borers below those determined in is section through any subterfuge device whatsoever.

(d) *Claim for unpaid wages.* Any erson who believes he has not been aid in accordance with this deterination may file a wage claim with ie local County Production and arketing Administration Committe against the producer on whose rm the work was performed. Such aim must be filed within two ears from the date the work with spect to which the claim is made as performed. Detailed informaon and wage claim forms are vailable at the office of the local ounty PMA Committee. Upon reeipt of a wage claim the PMA ommittee shall thereupon notify ie producer against whom the aim is made concerning the reprentation made by the laborer, and, after making such investigation as it deems necessary, notify the producer and laborer in writing of its recommendation for settlement of the claim. If either party is not satisfied with the recommended settlement, an appeal may be made to the State PMA Committee of the state in which is located the farm where the work was performed. The address of the State PMA Committee will be furnished by the office of the local County PMA Committee. Upon receipt of the appeal the State PMA Committee shall likewise consider the facts and notify the producer and laborer in writing of its recommendation for settlement of the claim. If the recommendation of the State PMA Commmittee is not acceptable, either party may file an appeal with the Director of the Sugar Branch, Production and Marketing Administration, U. S. Department of Agriculture, Washington 25, D. C. All such appeals shall be filed within 15 days after receipt of the recommended settlement of the respective committee, otherwise such recommended settlements will be applied in making

(Continued on page 220)

SUGAR STATISTICS FOR JANUARY-FEBRUARY 1950

The U. S. Department of Agriculture announced on April 5th that distribution of sugar by primary distributors in the United States during January-February 1950 as compared with the corresponding period of 1949 was as follows:

	1950	1949
	(short tons, raw value)	
Refiners' raw sugar (Table 1)	131	421
Refiners' refined sugar (Table 2)	747,749	783,402
Beet sugar processors (Table 2)	180,561	204,617
Importers' direct-consumption sugar (Table 3)	58,526	43,394
Mainland cane mills' direct-consumption sugar (Table 4)	28,091	33,708
Total	1,015,058	1,065,542
Deliveries for export	5,013	8,276
For U. S. Consumption[1]	1,010,045	1,057,266

The distribution of sugar for ical consumption in Puerto Ri during January-February 1950 w 14,059 tons and for the Territo of Hawaii 3,326 tons. (Table 5).

Stocks of sugar on hand Februa 28, were as follows:

	1950	1949
	(short tons, raw val	
Refiners' raw[2]	233,692	226,
Refiners' refined	241,616	214,
Beet sugar processors	989,064	892,
Importers' direct-consumption sugar	37,899	34,
Mainland cane factories	22,273	33,
Total	1,524,544	1,401,

[1] Includes deliveries for U. S. military forces at home abroad.

[2] Includes raw sugar held by Importers or not repor by Refiners in Table 1, as of February 28, 1950, 29, tons; 1949, 57,167 tons.

TABLE 1
Raw Sugar: Refiners' stocks, receipts, meltings, and deliveries for direct-consumption for January-February 1950

(short tons, raw value)

Source of Supply	Stocks Jan. 1, 1950	Receipts	Meltings	Deliveries for direct Consumption	Lost by fire, etc.	Stocks Feb. 28 1950
Cuba	76,956[1]	312,669	323,863	35	0	65,72
Hawaii	130,234	221,473	229,140	0	0	122,56
Puerto Rico	59,018[1]	17,382	71,147	61	0	5,19
Philippines	1,990	36,434	35,347	0	0	3,07
Continental Raws	63,994	75,935	132,715	35	0	7,17
Virgin Islands	0	0	0	0	0	
Other Countries	3,934[1]	6,308	10,242	0	0	
Miscellaneous	0	17	17	0	0	
Total	336,126[1]	670,218	802,471	131	0	203,74

Compiled from reports submitted by sugar refiners on Form SU-15A.

[1] Includes over-quota sugar as follows: Cuba, 48,339 tons; Puerto Rico, 57,693 tons; Peru, 2,855 tons.

TABLE 2
Refined Sugar: Stocks, production and deliveries of cane and beet sugar by United States Refiners and Processors, January-February 1950

(short tons, raw value)

	Refiners	Domestic Be Factories
Stocks of refined, January 1, 1950	187,374[2]	1,115,39
Production	801,991	54,23
Deliveries	747,749	180,56
Stocks of refined, February 28, 1950	241,616	989,06

Compiled from reports submitted on Forms SU-16A and SU-11C by the Sugar refiners and Beet sugar processors.

[1] Larger than actual deliveries by a small amount representing losses in reprocessing, etc.

[2] Includes 32,681 tons of over-quota sugar.

TABLE 3
Stocks, receipts, and deliveries of direct-consumption sugar from specified areas, January-February 195

(short tons, raw value)

Source of Supply	Stocks on Jan. 1, 1950	Receipts	Deliveries	Stocks on Feb. 28, 195
Cuba	15,499[1]	58,349	47,671	26,177
Puerto Rico	0	12,558	7,826	4,732
Hawaii	4,034	5,680	2,847	6,867
Other Countries	0	305	182	123
Total	19,533[1]	76,892	58,526	37,899

Compiled from reports and information submitted by importers and distributors of direct-consumption sugar on Fo SU-15B and SU-3.

[1] Includes 2,740 tons of Cuban sugar in customs' custody.

TABLE 4
Mainland cane mills' stocks, production and deliveries, January-February 1950

(short tons, raw value)

Stocks on January 1, 1950	Production	Deliveries		Stocks on Feb. 28, 1950
		For direct-consumption	For further processing	
49,715	50,243	28,091	49,594	22,273

TABLE 5
tribution of sugar for local consumption in Puerto Rico and the Territory of Hawaii, January-February 1950

(short tons, raw value)

Puerto Rico	14,059
Territory of Hawaii	3,326

ELIVERIES OF SUGAR AND DEXTROSE, BY TYPES OF BUYERS, 1949

A tabulation of deliveries in the nited States of sugar and dextrose ring calendar year 1949, grouped types of buyers such as bakers, cream manufacturers, and olesale grocers, was issued March th by the Production and Marting Administration of the U. S. epartment of Agriculture.

Based on information collected der a Research and Marketing ct project the tabulation shows liveries to the various trades by refiners, importers, beet processors, and dextrose manufacturers. The basic information was supplied by firms which ordinarily distribute more than 95 percent of the sugar sold in this country and by all U. S. dextrose manufacturers.

The findings are shown in the accompanying table. Comparable figures for the first nine months of 1949 were reported on March 2, 1950.

Sugar and Dextrose Deliveries by Type of Product or Business of Buyer, United States, Total, 1949

Product or Business of Buyer	Beet Sugar[1] (100-lb. bags)[1]	Cane Refined (100-lb. bags)	Imported D.C. (100-lb. bags)[2]	Liquid (100-lb equiv)	Total Sugar (100 bags)	Dextrose (100-lb. bags)
ery, cereal, and allied roducts	3,614,341	7,087,954	1,055,350	322,674	12,080,319	3,478,682
fectionery and related roducts	2,658,427	6,892,590	1,891,026	1,303,963	12,746,006	277,273
Cream and dairy products	1,163,211	2,056,435	307,964	904,013	4,431,623	270,687
erages	1,888,471	7,975,336	1,971,486	2,417,188	14,252,481	734,800
ined, frozen foods, jams, llies, preserves	3,048,869	3,146,458	1,156,633	1,451,098	8,803,058	784,241
ltiple and all other food ses	796,760	2,305,160	76,222	827,752	4,005,894	305,988
-food products	25,256	294,112	375,990	31,136	726,494	307,539
els, restaurants, institutions	80,898	442,384	25,199	1,424	549,905	-------
olesale grocers, jobbers ail grocers, chain stores, iper markets	10,626,907	40,923,741	2,282,616	119,477	53,952,741	208,027
other deliveries	2,582,363	21,008,101	165,913	3,213	23,759,590	-------
	552,700	813,868	227,095	2,713	1,596,376	95,414
otal Deliveries	27,038,203	92,946,139	9,535,494	7,384,651	136,904,487	6,462,651
iveries in consumer-size ackages (less than 100 00 lbs.)	5,821,620[3]	46,356,760[3]	191,783[3]	----------	52,370,163[3]	[4]

ource: Reports of primary distributors of sugar to the Sugar Branch, PMA.
Deliveries by 5 companies are estimated.
Deliveries by 3 companies are estimated. "Imported D. C." includes all imported sugar delivered for direct-consption without further processing.
"Deliveries in consumer-size packages" are included in "Total Deliveries."
Dextrose deliveries in consumer packages not reported.

BEET WAGE

(Continued from page 217)

payments under the Act. If a claim is appealed to the Director of the Sugar Branch, his decision shall be binding on all parties insofar as payments under the act are concerned.

—o—

THE EXCHANGE

(Continued from page 213)

period covered by the Cane Purchase Contract and the weekly average quotations that they issued were accepted as official by the industry and the United States Government.

Membership of the Raw Sugar Quotation Committee consists of the following gentlemen:

Louis Ebeling, J. C. LeBourgeois, Jr., Chas. A. Levy, Jules Mialaret, C. W. Peterman, E. A. Rainold, Jr. G. M. Talmage.

Membership of the Blackstrap Molasses Quotation Committee consists of the following gentlemen:

J. C. LeBourgeois Jr., Ernest A. Burguieres, E. A. Rainold, Jr., Louis Ebeling, Chas. A. Levy, L. P. Evans, John Manard.

There is another accomplishment of the organization since it began six months ago—one of which the entire membership is certainly delighted. This is the reappointment of Mr. Chas. A. Levy as a member of the Board of the New Orleans Public Belt Railroad Commission.

I have given you a few of the highlights that transpired during the first six months of our existence and I trust that the future holds in store many, many more."

The present officers and members of the Board of Directors of the Exchange will continue to service until the second annual meeting is held on the last Wednesday in March next year.

ANHYDROUS AMMONIA

(Continued from page 212)

Ammonia is especially well adapted for use on sugar cane. Usually, nitrogen is the only element applied to cane. The ammonia can be a plied early with minimum leachi losses. Ammonia will continue be the cheapest source of nitrog and the easiest to apply. Even the case of an application wi minerals, the minerals can be a plied at the rate of 400-500 poun per acre of 6-8-12, 5-10-10 or 0-1 12 from hoppers on the sides of t tractor while 60 pounds of nitrog as ammonia is being delivered in t soil through the regular applicato Ammonia lends itself well to pr planting and split applicatio These are practices that should worked out more fully in the f ture.

During 1949 two experimen were conducted for the purpose testing the comparative value of di ferent nitrogen materials on t production of sugar cane and s gar. The materials tested were a hydrous ammonia, ammonium n trate, calcium cyanamid, sodium n trate, uramon, and ammonium su fate. These materials were add at the rate of 60 pounds of nitr gen per acre with 40 pounds P_2O_5 as superphosphate and pounds of K_2O as muriate of potas With the exception of the anhydro ammonia, the nitrogen carriers we mixed with the superphosphate, per cent, and the muriate of potas 60 per cent. The fertilizers we applied in the off-bar furrow stu ble cane and covered immediate by the first dirting. In applyi anhydrous ammonia the phospha and potash were mixed and appli just before the ammonia which w put below the minerals in the of bar furrow with applicators. Th the off-bar furrow was covered the first dirting. The treatmen were made in randomized blocks a replicated three times. Each rep cate consisted of 0.1 acre in thr rows.

In the experiment on Commer clay loam at Little Texas Plant tion, Napoleonville, Table 1, the was no response to phosphate

REFINED SUGAR AVERAGE PRICES—UNITED STATES—1913-1949
(Net Cash at New York—Excluding Excise Tax†)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Aver-age
	(In cents per pound)												
1913	4.54	4.19	4.19	4.11	4.10	4.13	4.45	4.59	4.54	4.20	4.21	4.12	4.28
1914	3.92	3.92	3.84	3.72	3.90	4.16	4.21	6.13	6.80	5.97	4.99	4.84	4.68
1915	4.87	5.43	5.73	5.78	5.87	5.87	5.86	5.51	5.13	4.96	5.68	6.15	5.56
1916	5.74	5.99	6.59	7.02	7.46	7.33	7.50	6.98	6.39	7.09	7.35	6.99	6.86
1917	6.62	6.86	7.41	8.11	8.00	7.37	7.49	8.20	8.23	8.18	8.18	8.04	7.66
1918*	7.40	7.30	7.30	7.30	7.30	7.31	7.35	7.35	8.51 *	8.82	8.82	8.82	7.83
1919*	8.82	8.82	8.82	8.82	8.82	8.82	8.82	8.82	8.82	8.82	8.82	10.92	9.00
1920	14.82	14.70	13.72	16.07	19.31	21.47	21.56	18.35	14.26	11.05	9.56	8.11	15.25
1921	7.56	7.33	7.85	7.31	6.32	5.71	5.49	5.83	5.54	5.21	5.17	5.01	6.19
1922	4.80	4.93	5.20	5.21	5.28	5.87	6.52	6.71	6.24	6.60	6.80	6.94	5.93
1923	6.64	7.44	8.57	9.10	9.45	9.24	8.47	7.51	8.20	8.90	8.68	8.81	8.41
1924	8.22	8.50	8.42	7.89	7.11	6.43	6.42	6.48	7.00	7.06	7.13	7.10	7.31
1925	6.04	5.83	5.87	5.64	5.46	5.41	5.24	5.27	5.33	4.94	5.10	5.25	5.45
1926	5.11	5.15	4.96	5.21	5.43	5.44	5.56	5.53	5.61	5.72	5.74	6.10	5.46
1927	6.15	5.92	5.80	5.79	5.91	5.98	5.91	5.57	5.72	5.68	5.57	5.52	5.79
1928	5.68	5.54	5.64	5.82	5.85	5.89	5.65	5.48	5.41	5.12	5.06	5.15	5.52
1929	5.00	4.89	4.79	4.80	4.86	4.86	5.15	5.39	5.30	5.37	5.04	4.94	5.03
1930	4.87	4.85	4.87	4.78	4.74	4.48	4.61	4.37	4.34	4.41	4.61	4 57	4.62
1931	4.58	4.46	4.32	4.39	4.29	4.38	4.58	4.62	4.46	4.49	4.42	4.18	4.43
1932	4.08	4.07	3.98	3.81	3.68	3.73	3.94	4.09	4.17	4.12	4.15	4.07	3.99
1933	3.85	3.82	4.01	4.21	4.41	4.49	4.57	4.61	4.57	4.51	4.43	4.30	4.32
1934	4.21	4.34	4.41	4.32	4.10	4.04	4.12	4.12	4.12	4.03	3.91	3.75	4.12
1935	3.68	3.68	3.76	4.34	4.61	4.61	4.52	4.46	4.52	4.66	4.62	4.34	4.32
1936	4.61	4.56	4.65	4.90	4.90	4.90	4.73	4.63	4.61	4.49	4.62	4.70	4.69
1937	4.89	4.90	4.70	4.70	4.67	4.55	4.61	4.61	4.46	4.26	4.14	4.12	4.55
1938	4.12	4.12	4.03	3.95	4.02	3.88	3.81	3.68	3.93	4.01	3.92	3.87	3.95
1939	3.71	3.68	3.77	3.81	3.88	3.88	3.80	3.78	5.08	4.73	4.26	4.07	4.04
1940	3.91	3.88	3.88	3.88	3.88	3.84	3.73	3.73	3.73	3.73	3.73	3.74	3.80
1941	3.78	3.83	4.24	4.46	4.41	4.37	4.41	4.67	4.65	4.61	4.61	4.61	4.39
1942	4.76	4.81	4.81	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.91
1943	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95
1944	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.86	4.86	4.86	4.86	4.92
1945	4.86	4.86	4.86	4.86	4.86	4.86	4.86	4.86	4.86	4.86	4.86	4.86	4.86
1946	4.86	5.17	5.35	5.35	5.35	5.37	5.44	5.44	6.10	6.91	7.07	7.31	5.81
1947	7.40	7.50	7.50	7.55	7.55	7.55	7.55	7.68	7.70	7.70	7.70	7.70	7.59
1948	7.52	7.10	7.01	7.00	6.86	6.81	7.05	7.02	7.01	7.01	7.04	7.06	7.04
1949	7.30	7.31	7.26	7.40	7.33	7.18	7.16	7.16	7.20	7.35	7.35	7.35	7.28

* The U. S. Food Administration on September 6, 1918, announced the stabilization of a basis price of 9 cents per pound for refined sugar (8.82 net cash) effective September 9, 1918. This quotation remained in effect until December 20, 1919.

† Under the Jones-Costigan Act, a processing tax of .535 cent per pound was instituted on June 8, 1934 and was eliminated on January 6, 1936 by U. S. Supreme Court decision. Under the Sugar Act of 1937, an excise tax of .535 cent per pound became effective on September 1, 1937, and continued by the Sugar Act of 1948.

tash, but there was a marked re-onse to all the nitrogen carriers. ie soil is neutral and naturally

ble 1. Effects of source of nitrogen on the yield of ugar cane and sugar on Commerce clay loam at Little Texas Plantation, Napoleonville, Louisiana, 1949.

Source of Nitrogen	Tons cane per acre	% Sucrose Normal Juice	Pounds 96° sugar		Increases from fertilizer	
			Per ton	Per acre	Tons cane	Lbs. sugar
0- 0	17.40	12.75	169.6	2953		
$_4NO_3$ alone)	23.52	13.07	174.8	3992	6.12	1039
NCN	23.06	12.93	172.6	3982	5.61	1029
ydrous mmonia	23.65	13.30	178.4	4218	6.25	1265
NO_3	24.48	13.03	174.0	4263	7.08	1310
$_4NO_3$	24.72	12.99	173.4	4299	7.32	1346
mon	26.08	12.78	170.2	4434	8.68	1481
$H_4)_2SO_4$	26.27	12.73	169.3	4447	8.87	1494

ariety C. P. 36-105 1st stubble; fertilized April 18, 9; harvested November 10, 1949.
mmonium nitrate alone was applied at the rate of 60 nds per acre. In other cases the carriers of nitrogen e applied at the same rate with 40 and 60 pounds of $_5$ and K_2O in the forms of superphosphate and muriate otash.
. D. = 2.77 tons cane and 410 pounds of sugar.

well supplied with available phosphorus and potassium. Uramon and ammonium sulfate gave significantly higher yields of both sugar and su-

Table 2. Effects of source of nitrogen on the yield of sugar cane and sugar on Baldwin silt loam at Katy Plantation, Franklin, Louisiana, 1949.

Source of Nitrogen	Tons cane per acre	% Sucrose Normal Juice	Pounds 96° sugar		Increases from fertilizer	
			Per ton	Per acre	Tons cane	Lbs. sugar
0- 0- 0	13.99	13.15	176.0	2461		
NH_4NO_3 (alone)	17.49	13.16	176.2	3068	3.50	1171
Uramon	21.07	12.29	176.4	3421	7.08	960
CaNCN	21.17	12.59	167.2	3540	7.18	1079
$NaNO_3$	21.27	12.54	166.3	3536	7.28	1075
NH_4NO_3	21.95	12.40	164.1	3606	7.96	1145
$(NH_4)_2SO_4$	22.44	12.43	164.6	3695	8.45	1234
Anhydrous ammonia	22.53	12.19	160.8	3611	8.54	1150

Variety Co. 290 1st stubble; fertilized May 11, 1949; harvested December 21, 1949.
Ammonium nitrate alone was applied at the rate of 60 pounds per acre in other cases the carriers of nitrogen were applied at the same rate with 40 and 60 pounds of P_2O_5 and K_2O in the forms of superphosphate and muriate of potash.
L. D. = 3.07 tons of cane and 514 pounds of sugar.

gar cane than calcium cyamid, but they were no better than ammonium nitrate, sodium nitrate or anhydrous ammonia. Sixty pounds of nitrogen in the different forms gave increases in yield that varied from 5.6 to 8.9 tons of cane per acre.

Data in Table 2 collected from an experiment on Baldwin silt loam at Katy Plantation, Franklin show all the sources of nitrogen were, within the limit of experimental error, equally effective in increasing the yields of both sugar and sugar cane. In this experiment the phosphate and potash applied with the various sources of nitrogen were also significantly effective in increasing yields. The soil has a pH of 6.2 and is deficient in both available phosphorus and potassium as shown by soil tests. The increases from the complete fertilizers carrying 60 pounds of nitrogen in the different forms varied from 1.1 to 8:5 tons of cane per acre.

"The History of Sugar"

The American Sugar Cane League has received with the compliments of the publishers, Messrs. Chapman and Hall of 37 Essex St., London, W. C. 2 England, one of the most valuable and comprehensive books we have ever seen on the subject of sugar. It was written by Mr. Noel Deerr and comprises 636 pages, with numerous illustrations and it is far out of the ordinary in every way.

Noel Deerr has of course been known all over the sugar world for many years as a sugar specialist of high renown. He is now 84 years old and lives at Madhuban, Hinksey Hill Top, Oxford, England. The work to which this article refers is a splendid monument to his all-embracing familiarity with one of the world's most valuable foodstuffs. It should take a high place in the library of all institutions and individuals interested in any way in the vast and interesting subject of which it treats.

Messrs. Chapman and Hall (address given above) will be pleased to hear from all desiring to obtain copies of Mr. Deerr's book. The price is 55 shillings net, which means, in United States money $7.76 plus about 35¢ for bank charges.

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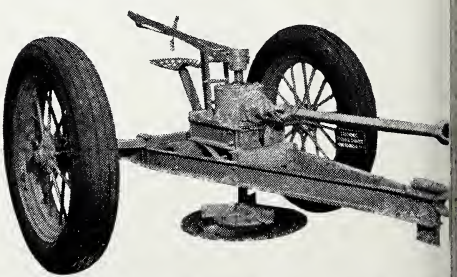

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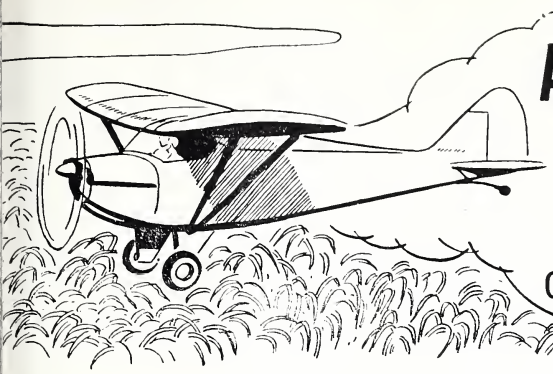

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THE SUGAR BULLETIN

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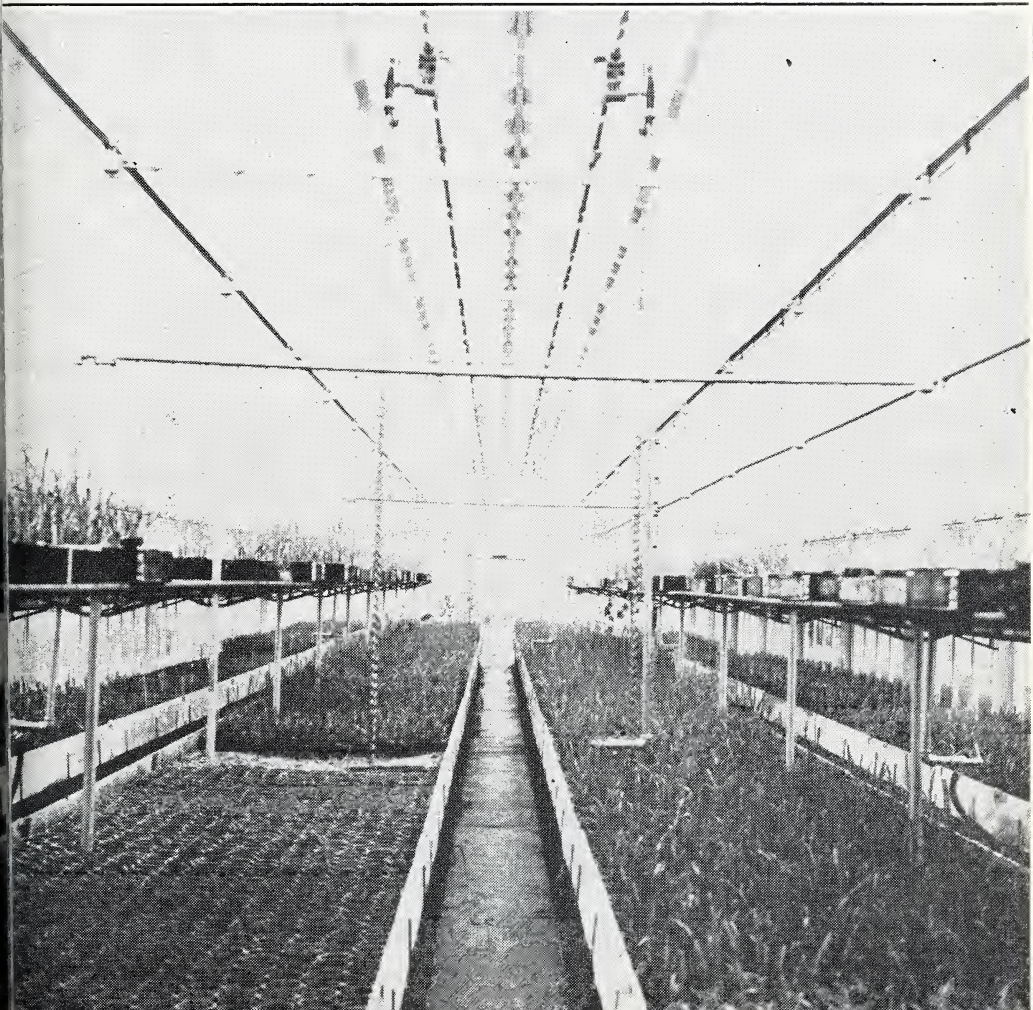

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THE
SUGAR BULLETIN

414 Whitney Bldg., New Orleans 12

MARCEL J. VOORHIES, Editor

The Official Organ of the American Sugar Cane League of the U. S. A.

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MINUTES OF THE MEETING OF THE CONTACT COMMITTEE OF THE AMERICAN SUGAR CANE LEAGU

March 22-23, 1950, *Louisiana State University, Baton Rouge, Louisian*

ATTENDANCE AT THE MEETING

Contact Committee
Stephen C. Munson
Elliott Jones
E. A. Maier
Horace Nelson
A. A. Thibaut
H. K. Bubenzer
L. C. Levert, Jr.
Clegg Caffery
L. S. Shaw
Ray Mullins
T. M. Barker
M. Lee Shaffer
Leon Godchaux II
Felix Savoie
Leon J. Landry

Experiment Station Staff
W. G. Taggart
I. L. Forbes
E. C. Simon
Harold T. Barr
A. L. Dugas
M. B. Sturgis
Jack DeMent
Ernest R. Stamper
P. H. Dunckelman
P. J. Mills
St. John P. Chilton
J. N. Efferson
C. B. Gouaux

Houma Station—USDA
E. V. Abbott
George Arceneaux
J. W. Ingram
R. M. Ramp
Robert Coleman
E. K. Bynum
L. G. Davidson
G. B. Duke

Visitors
E. R. McCrory
Joe A. Richard
F. A. Swann
T. C. Ryker
I. L. Saveson
Arthur Keller
Clements Helbling, Jr.
J. V. Fourmy
Charles Fusilier
Dan Bulliard
J. Wilson Lepine
P. Angelle, Jr.
B. C. Devall
Stanley Angelle
R. J. Steib
John C. Burden
P. C. Pipes
M. L. Arboneaux
R. H. Barrow
James Ozenne
F. A. Vought
F. M. Burley, Jr.
R. McCarthy, Jr.
R. T. Gibbens, Jr.
Marcel Voorhies
Claude LaLande
John W. Barker
Paul Concienne
Joseph Caire
V. O. Calandro
Joseph Lamendola
V. L. Caldwell, Jr.
Lionel Kling
Roy C. Meek
Francis Joseph Weiss

The meeting of the Contact Co mittee of the American Sugar Ca League was called to order by chairman, Mr. Stephen C. Munso at 10:00 A. M. on March 22, 19 The meeting was held in the au torium of the new Agronomy-Hor culture Building.

Mr. Alvin Dugas was introduc as the first speaker. He stated th he had not had time to prepare written report. His verbal repo concerned the control of the sug cane borer. He said that he wou discuss the results of last year's search rather briefly and then ta about the various phases of sug cane borer control of more vital terest at the present time.

In studies involving the evaluati of new and promising insecticid

(Continued on page 232)

SUGARCANE SEEDLINGS AT L. S. U.

by

*S. J. P. Chilton, P. H. Dunckelman, and P. J. Mills**

In 1948, at the request of the sugar dustry, the Louisiana State Legis- ture appropriated funds to be used the development of a sugarcane edling program by the Louisiana gricultural Experiment Station at aton Rouge, La. The American garcane League also made funds ailable to build a greenhouse 20′ x 0′, and this was completed in the ll of 1949 (see cover).

In the seedling work as it is now rried on, true seed from crosses tween varieties of sugarcane are tained from the Experiment Sta- n of the United States Department Agriculture at Canal Point, Fla. ese seed are planted at Baton uge in flats and the seedlings re- lting from them are transferred shall pots and then transplanted the field. When large enough se- tions are made of promising in- viduals which are replanted. Later ter further testing, the ones which em of value are to be assigned P. numbers and turned over to e agronomists for further evalu- ion. Eventually those which meet e standards necessary for a satis- ctory variety will be released.

In the spring of 1949, approxi- ately 110,000 seedlings were grown Baton Rouge from 182 crosses. these 40,010 were transplanted the field and an additional 5,814 re discarded because of suscepti- ity to mosaic. This was a total 45,824 seedlings, all of which were oculated with the sugarcane mosaic rus. While not complete, records dicate that in 1950, 53,600 seed- gs from 132 crosses were trans- nted to pots. Approximately 00 will be discarded because of mosaic susceptibility, and 40,000 to 42,000 will be available for transplanting to the field. Another 1,600 were discarded before transplanting to pots because of susceptibility to mosaic.

To give some idea of this project, in the fall of 1950 it will be necessary to walk 26 miles to examine each of the 80,000 sugarcane stools once. To pot the 53,600 seedlings in 1950, 30 pick-up trucks of soil were required. All this soil had to be screened, mixed, sterilized, and put in 3″ or 4″ pots by hand.

Although selections from individual stools are usually made from first stubble, in the fall of 1949, 332 selections were replanted in 8′ plots at Baton Rouge.

There is a feeling in the Western section of the sugarbelt that varieties with the general characteristics of Co. 290 are more suitable for that area than many of the others being grown at present. In an attempt to meet this desire as quickly as possible, 110 seedlings selected from the plant cane stools in the fall of 1949 were planted at Columbia Plantation, Franklin, La., through the kindness of Mr. John Caffery. This was done in cooperation with the U. S. D. A. personnel at Houma who supplied 185 selections from the 1947 and 1948 series of crosses.

It is hoped that among the 80,000 seedlings at Baton Rouge, as the result of the 1948 legislative appropriation, superior varieties will be found for the sugar industry of Louisiana.

* Department of Plant Pathology, Louisiana Agricultural Experiment Station, Baton Rouge, Louisiana.

DEFINITION OF A FARM IN PUERTO RICO

UNITED STATES DEPARTMENT OF AGRICULTURE
Production and Marketing Administration
TITLE 7—AGRICULTURE
Chapter VIII—Production and Marketing Administration (Sugar Branch), Department of Agriculture
Subchapter D—Determination of Farms
Part 827—Puerto Rico
Definition of a Farm

Pursuant to the provisions of section 304 (b) of the Sugar Act of 1948, the following determination is hereby issued:

§ 827.2 *Definition of a farm in Puerto Rico.* In Puerto Rico the term "farm" means all land which is farmed by one or more producers as a single farming unit with cropping practices, work stock, equipment, labor, and management substantially separate from that of any other such unit: *Provided, however,* That such term shall include a proportional profit farm which is organized pursuant to the provisions of Title IV of the Land Law of Puerto Rico, supervised by a manager with headquarters on the farm, and operated with work stock, light equipment, farm buildings, and labor substantially separate from that of any other such farm.

Statement of Bases and Considerations

Section 304 (b) of the Sugar Act requires that a farm be determined in accordance with regulations issued by the Secretary, taking into consideration the use of common work stock, equipment, labor, management, and other pertinent factors. The definition of a farm is important because proportionate shares and conditional payments, including abandonment and deficiency payments, are determined on that basis.

During the past few years, many thousands of acres of sugarcane farm land have been acquired the Land Authority of Puerto Ri a governmental agency, created local law. This agency has respo sibility for the operation of th land for the benefit of the agricu tural workers who are employ thereon.

Under the determination of farm issued January 1, 1944, admi istrative units within proportion profit farms of the Land Author were designated as farming un for purposes of the Sugar Act. Sin that determination was issued the have been several years of expe ence in the actual sugarcane ope tions of the Land Authority. A cent examination of the operatio shows that each of the several p jects of the Land Authority is br en down into proportional pro farms ranging in size from ab 500 to 3700 acres and averaging proximately 1600 acres. These far are operated under a formal c tract entered into by and betwe the Land Authority and a manag The manager resides on the fa and supervises the day-to-day ope tions in connection with the pla ing, cultivating, and harvesting the sugarcane crop. The Land A thority assigns to each of th farms the necessary work sto light farm equpiment, fertilizer, a other such items required to ca out the farming operations. Hea equipment, record keeping, super sion, and other facilities requi for large scale and efficient ope tions are provided by the Land A thority on a unit cost basis.

Title IV of the Land Law of Pu to Rico which provides for the tablishment of proportional pr farms also specifies that the net come therefrom shall be compu by deducting from the gross inco certain fixed charges, costs of eration, and other expenses as termined by the Land Author

(Continued on page 232)

IN WASHINGTON WITH C. J. BOURG

There was a meeting held in ashington on April 17th of the dustry Advisory Committee which as asked to confer with the Sugar ranch with reference to the pro-sed changes suggested by Cuba the International Sugar Agree-ent.

Louisiana was represented on the mmittee by Mr. J. J. Munson and r. M. J. Foster. Michigan was presented by Mr. A. W. Beebe d Mr. P. V. Goldsmith.

All domestic areas were repre-nted, and in addition, there were ree representatives of the large dustrial users who asked imperti-nt questions.

Frank Kemp felt called upon to swer them in a very diplomatic atement. Larry Myers, who has en out due to illness, made some planation to set the industrial ers right. Larry is apparently ry much better although he still s to take things easy.

The proposed International Sugar greement was explained by Bob ields, who made no specific commendations with respect to e quotas or the price provisions, both of which the domestic sugar terests are very much concerned. It was decided, after a more or s general discussion of the whole bject, that everybody would be pected to go home and study the ggested changes carefully and en be prepared to come back out the middle of May to discuss again. It is planned to have a eliminary meeting in London of the Sugar Council and it is the hope that the Industry Advisory Committee can make definite recommendations in advance of that meeting.

The reason for the consideration shown the sugar industry is due entirely to the fact that the State Department went ahead independently and without consulting the wheat industry on the International Wheat Agreement. The Senate defeated this agreement and so they had to start all over again and consult with the industry before they could get an agreement. They have tried to do better on sugar.

We are inclined to be very cautious to maintain the priority of the Sugar Act and the freedom of Congress to continue to act on such legislation in the future. We understand that a committee of Congress is supposed to be appointed by the Speaker and the Vice President and we are intent that we should have representation on this very important committee.

DR. ROY O. YOUNG

As this issue of THE SUGAR BULLETIN goes to press we learn of the death of Dr. Roy O. Young, who for so many years has been a part of the Louisiana sugar industry. Dr. Young died at 8:15 A.M. on the morning of April 27th at his residence in Youngsville after a prolonged illness. He will be buried tomorrow morning (April 28th) at 10 o'clock in the morning.

PUERTO RICO

(Continued from page 230)

After the manager's share in the net profits and the reserve fund, as determined by the Land Authority, have been deducted the balance of such net profits is distributed to the workers employed in the production and harvesting of the crops.

In view of the actual operation of the proportional profit farm, under the supervision of a manager, and the calculation and distribution of net profits derived from the proceeds of the crops marketed therefrom, it is deemed appropriate to designate such proportional profit farm as the farming unit for the purposes of the Sugar Act.

This determination supersedes, beginning with the 1949-50 crop, the "Determination of a Farm in Puerto Rico pursuant to the Sugar Act of 1937, as amended Revision 1," (9 F. R. 51) issued January 1, 1944.

(Sec. 403, 61 Stat. 932; 7 U. S. C. Sup., 1153. Interprets or applies sec. 304, 61 Stat. 931; 7 U. S. C. Sup., 1134)

Issued this 22d day of Mar 1950.

(Seal) Charles F. Brannan,
Secretary of Agricultur

MINUTES

(Continued from page 228)

for borer control, Ryania was fou to be as effective as cryolite. small plot second generation tes Ryania gave a better control th cryolite and exhibited a worthwh residual action. Sodium fluosilica Rothane, and compound 497 co pared favorably with cryolite a Ryania in regular toxicity tests.

In plane experiments to compa 10, 15, and 20 pounds of cryolite f second generation control, the t higher rates of application result in more economical results. Cont of the second generation only, seco and third generation, and third g eration only was compared in a re cated plane test in variety Co. 2 The added value of third generati

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ntrol was found to be insignifi-
ant.

In other plane tests a significant
ntrol of third generation borers
as obtained in varieties C.P. 29/116
nd C.P. 36/105 but not in Co. 290
nd C.P. 33/310.

From several years' results of both
ne Louisiana and the Federal Sta-
on, Ryania at 40 per cent strength
being recommended on the same
asis as cryolite for the first time
is year. However, it is felt that
ne acreage dusted with Ryania
ould be limited, since cryolite has
een used on a commercial basis
ince 1943, whereas Ryania has never
een used on an extensive commer-
ial scale.

Each year a borer injury survey
s made in cooperation with the En-
mology Department of the Federal
tation. From the results of last
ear's survey, it has been estimated
hat borers caused a loss of between
and 8 million dollars to the sugar
ane industry in 1949.

We may point out some definite
easons for the significant increase
nd spread of the borer and the in-
ury which resulted the past season:

1. The mortality of an extremely
eavy population of overwintering
orers was exceptionally low last
inter.

2. Early spring cultivation and
ubble field breaking, delayed by
nfavorable weather conditions, de-
royed only a small number of over-
intering borers.

3. No first generation dusting was
one because of the unfavorable
eather conditions and the weedy
ndition of the fields.

4. There was a general spread of
ne large population of first genera-
on moths into adjoining cane and
so an overflow into corn.

5. Only a small part of the cane
reage sufficiently infested to justi-
dusting was treated with cryolite
r second generation control.

6. Chemical control was not as ef-
ctive as in past years because of
ne heavy borer population and sig-
nificant reinfestation from adjoining infested cane and corn.

7. Finally, borers remained active throughout the harvesting season, not going into hibernation in October as usual.

It was, therefore, a combination of these various factors, all favorable for borer increase and spread, which accounted for the heavy losses this past year. The borer conditions at the present time are quite similar to what they were last year. There is now a very heavy population of overwintering borers in cane pieces, in summer planted cane and early fall plant and in shoots of early cut stubbles which have not been shaved.

Now, what can we do about this problem? Chemical control alone is not the answer. We recommend a combination of cultural practices and chemical control and have stressed this in various meetings of growers in practically every parish of the cane belt. Where cultural practices have not been followed to reduce extremely heavy borer population, dusting will not be as effective.

Mr. Dugas reviewed the recommended borer control program first advocated in 1943 (in Louisiana Bulletin 363, which is now being revised).

1. To decrease number of borers going into hibernation practice clean harvest and cut cane at ground level so as not to leave high stubbles.

2. Reduce numbers of overwintering borers by burning of trash, shaving of infested summer plant, early fall plant and early cut stubble and wrapping of shaved-off materials in the middles.

3. Chemical control of either the first or second generation of borers. It is recommended that first generation dusting be done over all acreage found to justify it and then second generation poisoning be applied to any acreage showing the proper infestation later. Number of egg masses, leaf signs, and deadhearts will be used in determining fields which justify dusting. (NOTE: This

information has been prepared for use by the industry and is available in mimeographed form from the county agents.) First generation dusting will probably have to be started about April 15, whereas second generation poisoning is usually begun about June 15-20.

4. Roguing of deadhearts is recommended for control of light borer infestations.

5. Concentrate summer plantings in one or two areas so as not to increase and spread borers. Shaving and dusting is usually required.

6. Plant borer free cane.

7. Harvest badly bored cane as soon as possible since losses increase as the season progresses.

Mr. Munson asked Dr. Chilton to discuss the sugar cane breeding program and disease studies of the Louisiana Experiment Station. Mimeographed copies were distributed of "Report for the year 1949 of the Department of Plant Pathology, Louisiana Agricultural Experiment Station to the Contact Committee of the American Sugar Cane League." Dr. Chilton briefly discussed the report.

After the discussion Mr. Ramp asked if the three-eyed seed pieces were treated after cutting of the stalks. Dr. Chilton answered that they were. Mr. Ramp stated that he was working on a mechanical planter and wished to know whether or not seed could be treated before the stalks were cut into sections or if it would have to be done after the stalks are cut into smaller sections. Discussion of the treatment of seed cane was looking toward the possibility of mechanical planting.

Mr. Munson asked Dr. Chilton to discuss in more detail the sugar cane breeding program of the past season.

Dr. Chilton stated that expansion of the sugar cane breeding program was brought about by the special Legislative appropriations and the $10,000.00 appropriated by the American Sugar Cane League for the building of a greenhouse at th Louisiana State University. Thi expanded program was started as result of the necessity of increasin or expanding the sugar cane breed ing program over and beyond tha which the U. S. Department o Agriculture had been able to do.

Last year the total number of ne seedlings grown by both Station was about 80,000 in Louisiana an an additional 15,000 at the Cana Point Station, Florida (for othe areas than Louisiana). The esti mated total this year is 70,000. Thi increased number of seedlings give hope of more and better varietie resulting from the expanded breed ing program. Attempts are bein made to produce seed at Grand Isl Louisiana. Seed was develope last winter and germination test were made. However, no seedling have been developed to date.

At this point in the discussio Mr. W. E. Anderson arrived. M Munson introduced the Commissio er to the group and asked everyon to give him a big hand, stating tha he has been a good public servant.

Mr. Anderson spoke for just few minutes. He told the group tha he has always been and still is friend of the farmers and that h wants to work wherever he can b helpful. He stated that the suga planters were recognizing the im pending damage to the cane indus try from the borer problem and be cause of this had appealed to th Special Session of the State Legisla ture for assistance. The result c this appeal was an appropriation c $250,000.00 to combat the borer.

Mr. Anderson told the group tha the State Department of Agricultur has an established policy of attempt ing to give assistance whenever as sistance is needed, and this depar ment cooperates very closely wit the State College of Agriculture i its several divisions in the stat Mr. Anderson added that the Stat Department of Agriculture is work ing with the sugar industry in

rogram of marketing of molasses. At this point, Dr. Chilton connued with his discussion of the ugar cane breeding program for is past year, emphasizing especial- the attempts at producing true ed of sugar cane at Grand Isle. ne of the recognized hazards in do- g this, he said, is the condition hich exists with the pollen. It ay be possible that techniques can e worked out in the greenhouse and pplied to the crossing which will lve this problem.

Dr. Chilton reported that every ffort is being made to speed up the sting of potential varieties for the eche area. The planting of new edlings of certain types of big arrel canes on Mr. Caffery's place an attempt to accomplish this.

Dr. Chilton thanked the U. S. epartment of Agriculture person- el for their part in the breeding rogram.

Mr. Horace Nelson asked what as the low temperature at Grand le for the past winter. Dr. Chil- n answered that in the past the ermometer has been 68 feet above ne ground. But this winter a round thermometer was used, so ey should get more reliable data n soil temperatures for future use.

Mr. Munson asked Dr. Arceneaux out repair work at Canal Point. r. Arceneaux replied that consid- able work had been done, but some ill remains to be done.

Dr. Abbott reported that there ad been sugar cane at Grand Isle r eight years in winters without vere cold. But the plots had been iscontinued during the war. Varie- es did bloom there during the inter in years where there was no vere cold during the preceding all. With varieties that produce ollen it is possible to produce some ed.

Dr. Chilton ended the discussion y saying that the data on the con- ol of Johnson Grass will be pub- shed.

The morning session was adjourned.

* * *

The afternoon session opened with Dr. J. Norman Efferson from the Department of Agricultural Economics presenting a discussion on cost studies in sugar cane. Before beginning his talk Dr. Efferson distributed Mimeographed Circular 110, entitled "The Louisiana Sugar Cane Cost Studies, 1937-1948."

It was pointed out by Dr. Efferson that the subject of cost studies had not been discussed before the Contact Committee during the past few years due to the fact that he had been out of the country.

Many of the tables contained in the mimeographed report were discussed in detail, with opportunity being given the group to ask questions where clarification was necessary.

Mr. Maier made the statement to Dr. Efferson that he had never seen a cost study in which the cost of a tractor had entered into the cost as wages, but that he thought the tractor should be classified as such. He made the observation that cost studies as they have been tabulated and analyzed did not show the cost of tractor parts, including raw materials, fabrication, etc., in contrast with the man-hour wages paid on Louisiana sugar cane farms. Dr. Efferson answered that in these cost studies all tractor expenses including parts and repairs were included in the total cost and that Mr. Maier was correct in that they were not classified as wages.

Dr. Efferson reminded the group that publications have been issued on each of the subjects and are available to everyone.

Mr. Munson called upon Mr. Simon for a report on varieties. Mr. Simon circulated a mimeographed paper, entitled "Report on New Sugar Cane Varieties." In the discussion that followed he explained the tables in the report and stated that all of the results given had been ob-

tained at the Baton Rouge Station.

It was reported that C.P. 45-122 was a very promising variety.

Dr. Arceneaux inquired about C.P. 45-184. Mr. Simon answered that it was promising, but it had been held back only on one point—it was not known whether it would deteriorate too rapidly after cutting.

Dr. Arceneaux said that Mr. Coleman, at Houma, in his original test, which included only one sample, found an indicated high inversion rate. Mr. Coleman said that he had checked very carefully, and the inversion rate was 1.7 compared with Co. 281 which puts it in the satisfactory category as far as inversion rate is concerned.

Mr. Leon Landry asked about C.P. 36-80 and said that at Orange Grove Plantation it seems to be an outstanding variety. Mr. Simon said that they had always liked the variety and felt that it might very definitely have a place in the Bayou Teche area.

Chairman Munson told the group that varieties would be discussed further when the sub-committee of the Contact Committee of the League meets the latter part of May.

Mr. Leon Landry inquired about C.P. 43-47. Dr. Arceneaux said that 53-47 was considered by them to be a valuable cane. Mr. Simon said there were better potential canes available at present.

Mr. Jones then made the observation that Mr. Simon had indicated about five good sugar cane varieties. He said he thought the industry was in a much better position right now with promising varieties than it has ever been.

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Dr. Arceneaux told the group tha mosaic was spreading very rapidly

Dr. Abbott said there was a strai of mosaic at Raceland in C.P. 45-7 That particular strain is not preva lent in the district, he said.

Dr. Arceneaux wanted to find ou how much spread there had bee There was concern over the pres ence of mosaic in a variety whic might prove to be of a commercia caliber.

Dr. Abbott said he didn't thin mosaic would be enough of a facto to knock this variety out completely

Mr. Taggart asked Dr. Abbott we had a variety which has a mo saic strain which isn't injuring ou other varieties—that from exper ence in the past if we continued t grow that type of mosaic might not adapt itself to some of the othe good varieties.

Dr. Abbott stated that this strai at Raceland also affects a number o other varieties that haven't contac with mosaic elsewhere. We should b very careful, he said, that we don distribute mosaic. As far as h knew, the mosaic isn't generall prevalent in the district. We d know it occurs in places, and if yo start distributing varieties indis criminately, it will be bad, he sai

Mr. Barrow from Smithfield wa asked by Chairman Munson if h had anything to say. Mr. Barro commented that he thought the were a few too many varieties ther

Mr. Jones entered into the dis cussion by saying that they have great many varieties furnished b the Houma Station and that the get very valuable information fro having a larger number of tests o these varieties.

Mr. Angelle was asked for h opinion of the secondary station He reported very favorably on th type of station, the main point bein that it enabled him and his asso ciates to obtain new varieties muc earlier than they had been able t do before the advent of the secon ary increase stations.

Mr. Burley of the Youngsville rea spoke favorably on Co. 290 and he good results they had had in eeping the variety rogued free rom mosaic.

Mr. Caldwell of the Lafourche rea reported that C.P. 34-120 was ery disappointing and that they ere attempting to plant as much .P. 36-105 as they could possibly et to replace C.P. 34-120.

Dr. M. B. Sturgis distributed a imeographed report, "Anhydrous mmonia and Other Materials as a ource of Nitrogen for Sugar Cane." he discussion which followed dealt ith soil work in the sugar cane rea.

Dr. Sturgis stated that one of the roblems was to open up some of he heavier soils. Then by increasng the depth of the soils, there ould be bigger increases in the roduction of cane. The material n the report was discussed briefly, fter which Mr. Jack Dement of the epartment of Crops and Soils talkd on "Complete Fertilizers for Sugar Cane," which was the second art of the mimeographed report istributed by Dr. Sturgis.

Mr. Dement discussed a few of he tables contained in the report nd told of experiments that had een conducted this past year at ine locations on six different soil ypes.

Mr. Caldwell requested Dr. Sturis and Mr. Dement to put in a comlete fertilizer experiment on his lantation in Lafourche Parish in he vicinity of Labadieville. Dr. turgis said that this could be done.

The afternoon session was adourned at 4:35.

* * *

The last session of the meeting as held at the new Agricultural ngineering Building and was beun at 10:00 Thursday morning, arch 23. Chairman Munson called he meeting to order and said that r. Simon had a statement to make egarding the death of one of the older members of the Experiment Station staff—Dr. Charles I. Bray. The group was asked to stand for a minute of silent prayer.

Following this announcement the meeting was begun with a paper by Mr. I. L. Saveson, mimeographed copies of which had been distributed among the group. After a review of the paper there was some discussion.

Mr. Caldwell asked how long it took for land which had been waterlogged to be brought back into condition, to which Mr. Saveson replied from two to three years. Mr. Caldwell also inquired as to the width of cuts. Mr. Saveson answered 40 rows.

Mr. Jones asked for additional information on the land leveler which Mr. Saveson had referred to. Mr. Saveson briefly described this equipment and asked those who were interested to visit the shop and inspect the machine. He explained further that this piece of equipment should be used in combination with other machinery. It is pulled by a Caterpillar tractor and will not work satisfactorily in mud. No cost figures were available on the operation of the equipment.

Dr. Keller introduced Mr. Clements A. Helbling, Jr., who presented

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a paper, entitled "A Report on C Cane Deterioration Under Field Sto age Conditions." This paper w mimeographed and given out those present. Mr. Helbling di cussed the paper in some detail. the conclusion of the presentati a number of questions were aske

Mr. Jones and Mr. Munson i quired whether or not the expe mental cane had been burned, which Mr. Helbling answered th the cane was cut by hand and n burned. Dr. Keller stated that the was a great variation among sar ples as might be expected.

Questions were asked about mu on cane in wet weather. Dr. Kell replied that in his opinion mu isn't the all-important proble Rather, the problem is somethi which develops on the outside cane stalks which undoubtedly micro-organisms. In his opinion t problem is due to a combination factors. Mr. Godchaux request that work on this phase of the pro lem be continued.

Discussion followed on the milli qualities of different varieties cane. Mr. Simon and Dr. Kell were of the opinion, based on t large mill tests of last fall, th C.P. 44-155 milled better than C. 44-101 but that C.P. 44-101 mill satisfactorily. So ended the discu sion of the paper by Dr. Keller a Mr. Helbling.

Chairman Munson asked M Gouaux to discuss the test field r sults for the past year. Since t final mimeographed report of t test field results had not been co pleted pending the obtaining of t new names of the soils on whi Mr. Gouaux's test fields are locate these names to be obtained from M Lytle who is reclassifying the soi Mr. Gouaux gave a verbal repo In this report he ranked the vari ties on the various test fields a cording to their performances, lis ing them as plant cane, first stubb and second stubble plantings.

An interesting discussion, as sual, followed Mr. Gouaux's presen- ation of test field data.

Chairman Munson requsted of Ir. Gouaux that he supply each ıember of the Contact Committee ith a copy of the mimeographed eport as soon as it is completed. Ie also requested that Mr. Gouaux upply each of them with a list of he old names and a list of the new ames of the soils on which the est fields of the Louisiana Agri- ultural Experiment Station are lo- ated.

Mr. Munson called upon Mr. tamper for a discussion on weed ontrol. Mr. Stamper referred to a ortion of the mimeographed paper hich had been previously distrib- ted by Dr. Chilton. In addition, Ir. Stamper showed a number of olored pictures and illustrated the aper further by charts. He pointed ut in his discussion that the best ontrol of Johnson grass in sugar ane results from a combination of hemicals and flaming. In addition, ot treatment and hand roguing of calized plants which escape chemi- l and flame control is recommend- l to clean up Johnson grass. Mr. tamper discussed also the necessity f using some type of cover, wheth- natural vegetation or otherwise, n ditch banks that have been freed f weed growth by chemicals.

At this point Mr. Taggart intro- uced John S. Norton who showed me samples of boards made from rm residues, a project which has ecently been started at L.S.U. These mples included rice hulls, saw- ust, and bagasse. Mr. Norton stated is type of product would be best sed as wall boards, etc.

Since there was no further busi- ess, the meeting adjourned at 2:30.

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THE SUGAR BULLETIN

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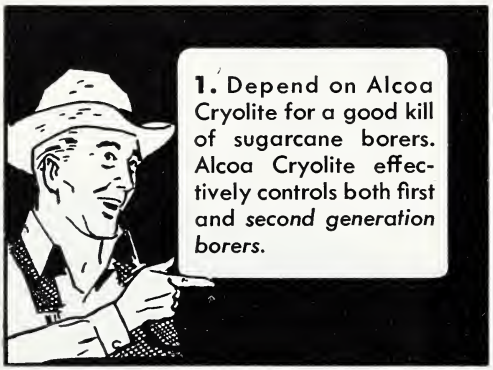

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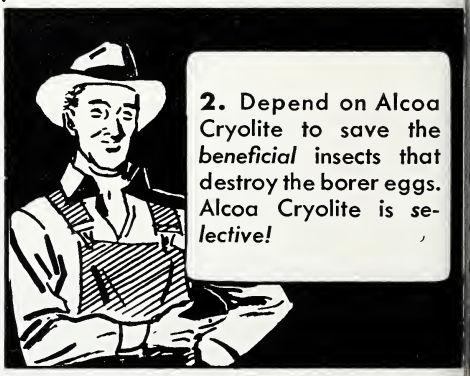

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THE
SUGAR BULLETIN

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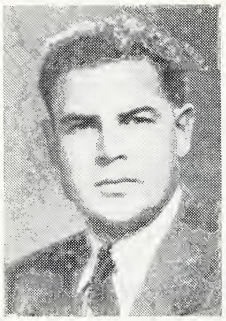

THE BLACKSTRAP MOLASSES MARKETING PROGRAM IN LOUISIANA

Marketing Costs and Distribution of Blackstrap Molasses

by

Roy B. Johnson, Coordinator

It is a generally accepted fact that the cost of delivering molasses to the consumer in small lots is one of the principal factors influencing the amount of this product consumed directly on the farm as a feed. The marketing costs between the mill and the final consumer are so great (when compared with the factory price of blackstrap) that molasses usage is often uneconomical for many farmers who desire only a relatively small quantity at the time. The problem of reducing transportation and handling costs so that molasses can be made available to feeders who desire to use it is one of great economic concern to the sugar industry.

In Louisiana, the dehydration of molasses is one of the more recent means of avoiding some of the inconveniences of handling liquid molasses, offering at the same time a possible way to reduce transportation costs. At least two firms in this State are known to produce an acceptable product of this nature by blending blackstrap with some other feed or carbohydrate carrier and drying. The finished product is packaged in 50 or 100 pound moisture-resistant bags for convenient handling, storing and shipping.

Tank-truck delivery of molasses to feed mixers and other large users of molasses has become an important means of distribution for this product. The user of molasses usually installs a holding tank of sufficient size to meet his needs. This enables him to economize on bulk purchases, and at the same time he is able t keep an ample supply of molasses c hand. According to a report by th United States Department of Agr culture, in one section of the Nortl east, tank-truck deliveries cut th cost of molasses to small mixers b about 25 percent. Many feed mixe in Central and South Central Texa depend largely upon tank-truck d liveries as a source of supply fc molasses.

Aside from tank-truck deliverie a considerable amount of blackstra is moved in 55-gallon drums. Th system of moving molasses is con mon among some of the smaller bee cattle farmers and dairymen i Louisiana. These feeders usually bu blackstrap directly from the mi or from some local distributor i their area. In the latter case, th molasses may be either delivered t the farm or picked up at the distr bution point. In either case, th farmer's investment is relativel small.

Barge shipments of blackstrap another way by which a reductio in transportation costs may be e fected. This is indicated by th usually lower prices for blackstra in cities located along inland wate ways as compared to prices fc blackstrap in cities served mainl by rail.

Commercially mixed feeds accour for the largest percentage of mc lasses used for feed purposes. Asid from dairy and beef cattle feed, mc

(Continued on page 253)

FEEDERS HAVE SWEET BARGAIN IN MOLASSES

The "sweetest" bargain among arbohydrate feeds this season is olasses. Supplemented with pro-in and fed properly, molasses can ake large savings in livestock eeding costs.

The United States Department of griculture says that feeders can uy 16 to 17 gallons of molasses or the price of a bushel of corn— r about 187 pounds of molasses for ne same money it takes to buy 56 ounds of corn. During the past 20 ears, the average has been 8 gal-ns of molasses for the price of a ushel of corn.

Research and experience show hat, when used in large amounts, olasses has 60 to 65% of the eeding value of corn; and when sed in small amounts to increase alatability of rations, molasses may ave almost pound for pound value ith grain. Even at the lower val-ation, molasses now costs less than alf as much as corn on a gain-roducing basis.

Because molasses is very low in rotein and phosphorus, the need r supplementing it with cotton-ed meal, which is rich in both, even greater than with grains, eding authorities point out.

Experiment Stations found that lding cottonseed meal to free-oice pasture and molasses feeding creased the rate of gain and ap-etite; produced more finished and higher-selling carcass; and re-ced the amount of feed required r pound of gain.

Molasses may be mixed with other ncentrates at the time of feeding, it may be mixed with one to two mes its weight of water and rinkled on the roughage ration. or any livestock, increase mo-sses gradually in the ration to oid digestive troubles. Fattening eers may be self-fed molasses from trough after they are accustomed eating 5 to 6 pounds daily.

A good daily ration for yearling steers on full-feed is: 5 pounds of ground grain, 6 pounds of molasses, 3 pounds of cotton seed meal, 10 pounds of cottonseed hulls or grass hay and 2 pounds of alfalfa hay. Older cattle may be fattened economically on a ration of: 3 pounds of cottonseed meal, 10 pounds of molasses, 15 pounds of cottonseed hulls and 2 pounds of alfalfa hay.

For wintering the beef herd, a protein concentrate is best, but molasses is good to add to the ration when grazing is not ample and coarse roughages are fed. Tests show that cottonseed meal gave better results than molasses to supplement dry pasture or non-legume roughage. Winter cows on 2 to 2½ pounds of cottonseed meal and 15 to 20 pounds of dry roughage. Pouring 3 to 5 pounds of molasses over the daily roughage rations add energy value and increases consumption of roughage.

For dairy cows, molasses is satisfactorily used up to ¼ of the concentrate mixture. When cows are on poor pasture and cottonseed hulls or other non-legume roughage, feed ½ of a pint of molasses and 3 pounds of a mixture of equal parts of ground grain and cottonseed meal for each gallon of milk produced. If pasture is excellent or ample legume hay is fed, feed ½ of a pint of molasses and 2 pounds of a mixture of 1 part of cottonseed meal and 2 parts of grain for each gallon of milk produced.

For fattening lambs molasses may make up 1/3 of the concentrate mixture. Care should be taken to keep molasses out of wool.

Molasses is best for work stock when replacing not more than ½ of the grain. Larger amounts may cause excessive sweating and a "winded condition."

Hogs weighing over 70 pounds may have 10 to 20% of their grain ration replaced by molasses.

THE CANE BORER MENACE IS SERIOUS

At the monthly meeting of the Louisiana Sugar Producers Club (Western Division) Mr. A. L. Dugas, of the Louisiana Agricultural Experiment Station, was asked to review the cane borer situation and, apparently, the fears of the experts of the State and Federal experiment stations that this year will be a very bad one borerwise are beginning to materialize. The borers have started to emerge and the fight to eradicate them must be carried on. Mr. Dugas' remarks have been lifted from the minutes of the meeting and are as follows:

"The industry is now faced with one of the heaviest first generation infestations of the sugarcane borer that I have ever observed. The infestation appears to be just as heavy and widespread as was anticipated from the extremely large population of borers which successfully overwintered.

Overwintering of borers in dead hearts in the shoots growing from stubble and early plant cane in addition to those which came through in the cane pieces on the ground is an important contributing factor to the present situation.

Dead hearts found in the fields now are caused by the borers last fall. Borers hatching from eggs deposited late last fall hibernated in some of the growing shoots of early cut stubble and early planted cane. Normally dead hearts from spring generations would not begin to appear until about the first of June.

Now is the critical time for checking fields to determine the areas which should be dusted for first generation control. The minimum counts which meet requirements for chemical control are five (5) egg masses per man hour or 360 stools showing leaf signs per acre. In order to speed up the checking of fields it is suggested that in this particular area the growers rely on leaf sign counts instead of eg masses."

Mr. Dugas listed the followin seven points regarding the Louis ana State assistance program.

1—The farmer must make th proper counts to determine the acr age to be dusted.

2—The farmer then fills out th application for verification blank and submits them to either th county agent or State agent.

3—The State agent must the check the farm to verify the appl cation.

4—After verification the growe signs an application for the amoun of insecticide to dust the verifie acreage and pays twenty-five pe cent (25%) of the cost of the du to the State agent or the count agent.

5—The farmer is given a recei for the payment.

6—A certificate of entitlement given the grower and he procur the dust at the warehouse desi nated on the certificate.

7—He then signs a receipt for th amount of poison he has receive

Following his talk Mr. Dugas w asked a number of questions whi we believe of interest.

Question: Where would you loo for the borer at this time?

Answer: In a normal year th borer is found mostly in stubb cane. However, this year borers a being found in stubble and ear planted cane.

Question: How about second ge eration dusting?

Answer: Try to dust as much the first generation as possible, the get the second generation later.

Question: How does the dust g in the bud of the cane?

Answer: We have found that ai plane application does a good job spreading the dust in the bud ar on other parts of the cane plant.

Question: How does the poison k

(Continued on page 254)

DR. ROY O. YOUNG

The Louisiana sugar industry lost one of its most forceful leaders in the passing of Dr. Roy C. Young who died on the morning of April 27th, 1950 at his residence in Youngsville. The May 1st issue of THE SUGAR BULLETIN was on the press when the news of Dr. Young's death was received and we were able to carry only a very short notice of his death in that issue.

The Louisiana Sugar Producers Club (Western Division), which was founded by Dr. Young, adopted a resolution regarding their founder at its monthly meeting in New Iberia on May 5th. We feel that this expresses the sentiments of the entire Louisiana sugar industry and print it for the record:

WHEREAS: On the 27th of April, 1950 Dr. Roy O. Young died at his home at Youngsville, La., after an illness that was prolonged and discouraging and

WHEREAS: There has seldom existed in the history of the Louisiana Sugar Industry a man more conspicuous for his enterprise, activity and determination than Doctor Young or one who brought his individuality and ability to bear more impressively towards the development and expansion of the area adapted to sugar growing in this State and especially to the advancement of cane growing and sugar production in the far western portion thereof and

WHEREAS: Dr. Roy O. Young combined a keen, logical and consistent mind with unusual energy and determination and persistence in the furtherance of financial ideas that he believed to be sound and which he considered certain, if carried through, would redound to the benefit of thousands of people of modest means in the territory surrounding and adjoining his own scene of activity and his own investments and enterprises and

WHEREAS: It became evident to all long before his fatal illness that, as a result of his persistent efforts and sound judgment, a significant up-building of the agricultural conditions in the area of his influence had developed and his reputation as a wise and level headed leader had been confirmed and emphasized and

WHEREAS: A great number of the citizens of this State, not only in the area of his immediate influence but stretching far afield therefrom, had come to look upon him as a man of extraordinary ability, great acumen and tireless initiative, therefor be it

RESOLVED: That the officers and members of the Louisiana Sugar Producers Club (Western Division) now go on record as applauding and admiring Dr. Young's career of achievement and that they express their sorrow over its termination and also their sympathy to the members of his family and his hundreds of close friends.

JOSEPH T. ELVOVE LEAVES SUGAR BRANCH

Mr. Joseph T. Elvove, Assistant Director of the Sugar Branch of the United States Department of Agriculture, has resigned that post to become associated with W. R. Grace & Co., international industrial and trading concern at 7 Hanover Square, New York. In his position with W. R. Grace & Co. he will be in charge of the Company's Cocoa and Sugar Departments. He leaves the Department of Agriculture on May 15th and joins Grace on June 15th.

For the past four years Mr. Elvove has been associated with the Department's sugar programs, serving as Chief of the Sugar Branch's Quota and Allotment Division prior

(Continued on page 255)

HETEROSIS OR HYBRID VIGOR IN SUGARCANE

(From the Quarterly Bulletin of the American Society of Sugarcane Technologists)

by

E. W. Brandes, in Proceedings of the 22nd Annual Conference, Asociacion de Tecnicos Azucareros de Cuba, 1948, *pp.* 31-36.

Improvements of sugarcane by hybridization have taken the form of (1) increased resistance to diseases, (2) better adaptation to the different climatic aid and soil conditions, and (3) the endowment of inherent acceleration of growth and vigor, or "hybrid vigor".

Inherent vigor is a phenomenon independent of the other two, although from the standpoint of the practical plant breeder it is related to adaptation to environment. Like all other characteristics of a sugarcane variety or clone, inherent vigor once bestowed by hybridization is preserved unchanged in successive vegetative generations. Some new aspects of the phenomenon of hybrid vigor are (1) the evidence of an ascending scale of vigor by the development of interspecific hybrids and (2) the fixation and maintenance of the characteristic without resort to the laborious and expensive method of animal hybrid seed production as in corn.

The word "heterosis" was coined by Dr. Shull in 1914 as a more definitive term for hybrid vigor. He conceived that progressive decrease in size of corn plants that accompanied generations of inbreeding and the reverse or increase in size were in reality different manifestations of the same law of genetics. In simplest terms, decreasing size accompanied increasing number of paired unit characters or factors (genes) in which the characters were alike or homozygous. Increasing size accompanied increasing number of pairs that were unlike or heterozygous.

Steps taken in the field to produce improved hybrid vigor in corn and cane are different. Because of the technical difficulty in obtainir pure lines by inbreeding the high polyploid sugarcane, that step wa omitted. A variation of the proger test accomplished essentially th same purification of the basic pa ents in sugarcane as production pure lines in corn. By long exper ence it was found possible to di tinguish good mothers and fathe by the performance of their chi dren. It was discovered by Breme in Java in 1921-25 that crossing variety of *Saccharum officinaru* with one of *S. spontaneum* resulte in hybrids with the diploid numbe of chromosomes of the formr plu the haploid number of the latte that is, a greatly increased chrom some number in the hybrid. Th unexpected result of interspecif hybridization set a new and in proved style for increasing the h terozygosity of sugarcane hybric and far exceeded the parallel ste used in corn improvement. Th method of improving cane by usin inter-specific crosses was started a our station at Canal Point, Fla., i 1920 and had been used earlier a Coimbatore, India by Dr. A. C. Ba ber. More recently interspecific hy brides have been used in breedin programs in other countries. Nov with the accumulation of sugar pr duction records over a considerab period of time, it is possible to se in proper perspective the relation genetic constitution of varieties an yield trends.

Hybrid vigor artificially induce is a standard device or contributio to practical, proved methods of su garcane improvement. However, r matter how good a variety is, it possession does not relieve the grov

(Continued on page 254)

SUGAR MANUFACTURE IN LOUISIANA

By Walter Godchaux, Jr.—April 28th, 1950

Presented to the 97th Annual Meeting of the New Orleans Academy of Sciences, held at Tulane University on April 28, 1950.

Although almost everyone, when ey think of sugar in connection ith Louisiana, think of the manu- cture of raw sugar from sugar ne, it is a fact that Louisiana as the largest refining capacity any State in the Country. The pacity of the refineries in and ear New Orleans is 12,000,000 lbs. refined sugar per day, contrasted ith about 7,500,000 lbs. in the ew York area. However, as the lance of this program has been voted to the exclusively indige- ous phase of the industry, the owing of sugar cane, and the oduction of raw sugar, I will con- ne my remarks to the manufacture raw sugar. Louisiana produces out 450,000 tons of sugar, 35,000,- 0 gallons of molasses, and as a cessary by-product 800,000 tons fibre per year. Fifty-three (53) ctories are now operating in the ate, with a daily individual capaci- ranging from 800 tons to 3600 ns. The whole grinding operation a race against time and the ather. After a hard freeze the crose in the cane inverts, and ter about four weeks, particularly there is any warm weather, no gar can be extracted, and the ne is worthless.

The eminent gentlemen who have receded me have told you how gar cane is grown. Cane is ready r harvesting in October, generally tween the 10th and 20th. After ing cut in the field by hand or achine, stripped of leaves by hand burned to partially remove them, is transported by tractor and ailer (formerly by mule wagon) om the field to a derrick located on e highway or railroad siding. Here is lifted by means of chain slings hich were placed in the truck be- fore it was loaded, into larger trucks or gondola cars. Generally in Louisiana cane is brought from a radius of 15 to 20 miles around the factory, occasionally from as far as 35 to 50 miles. Today the greatest amount of cane is hauled by trucks. Formerly both standard gauge and narrow (2′ or 3′) gauge railroad played an important part in cane transportation. The narrow gauge railroads, frequently with 20 or 30 miles of tracks surrounding the mills, with their miniature cars and dummy engines huffing and puffing along the rails were a picturesque part of the grinding season. But they are the victims of technological progress along with the mule and the thousands of negro cane cutters. High post-war maintenance costs have caused them to be replaced by motorized transport.

When cane is handled by standard or narrow gauge railroad, the cars serve as storage place for cane which is to be ground at night or on Sunday, since hauling in Louisiana is confined to the daylight hours, six days a week. When cane is brought in by truck, part of it is lifted, still in the slings in which it was brought in from the fields, onto large feeder tables where, the slings removed, it is pulled along by chains and fed gradually into the cane carrier leading to the milling equipment. Cane which can not be ground immediately is lifted by guyed derricks and dumped from the slings into large piles from which it is removed at night by the same derrick fitted with a grab, and placed onto the same feeder tables as are fed directly from trucks in the daytime.

Before being actually crushed the

cane is prepared by being cut up by revolving knives or hammer mill type shredders or both. The shredders not only cut up the cane into small lengths, but break up the hard outer rind of the stalk. This has been found particularly advantageous with the hard, fibrous, varieties of cane, (bred for disease and cold resistance) now grown. Most milling tandems begin with a two roll crusher with a 2½″ or 3″ pitch annular grooving whose original function was to break up the rind of the cane. When shredders are used a heavy duty 2″ or 2½″ pitch grooved three roll mill can be used to advantage with no crusher. The first squeezing removes 60 to 65% of the juice in the cane. The crusher or heavy 1st mill is followed by three to five three roll mills. In these the cane is pressed twice, once between the top and front, and once between the top and back roll. A cast iron plate called the "turner bar" or "turnplate" fills the space between the two bottom rolls. Before the cane has passed through the last mill about 20 to 25% by weight of hot water is sprayed on it to dilute the remaining juices and increase the extraction of sucrose. The thin juice squeezed out by the last mill is sprayed on the cane ahead of the preceding mill, and so on. The fibre remaining after the milling operation is called bagasse and consists of about 42-50% water, 2-3% sucrose, and 47-56% fibre. You have already heard about the various uses of this material. About 70-76% of the juice and 92-94% of the sucrose in the cane is obtained in a good milling operation.

The juice extracted by the crusher and the first two mills is weighed for factory control purposes, and adjusted to a pH of about 7.6—8.2 with a lime slurry, either continuously or in batch tanks. The limed juice is then pumped through tubular heat exchanges (juice heaters) where it is heated to 212°—216° The action of heat and lime ser to coagulate and precipitate colloi ial impurities in the juice, and t precipitate entraps mud, fine ca fibres, and other mechanical impu ties in the juices. The precipitate settled, either in batch tanks or most modern plants in Dorr or sin lar continuous clarifiers. The pr cipitated mud contains considera sucrose which is recovered by f tering over a continuous vacuu filter using fine bagasse as a filt aid. It is washed with water on t filter before it is discharged. T clarified juice, now a clear, yello ish liquid containing about 10-12 solid, is ready for concentration a heavy syrup. Preliminary evapo ation, from 10-12% solids 55-60% solids, is done in mu tiple effect for steam econom In Louisiana, economics usually r quire triple or quadruple evapor tors using initial steam pressure 10 lbs. (240° F.) and a final pre sure of 28″ of mercury vacuu (101° F.).

This syrup is then further co centrated in single effect vacuu pans, until it is supersaturated a sugar crystals form. Actually t crystals are all formed at once "shocking" the supersaturated syr by introducing a cupful of powder sugar into the pan. By controlli the temperature of boiling and t rate of feed of fresh syrup, the crystals are made to grow and t vacuum pan is filled with a "strik of crystals and mother liquor. Th massecuite is dropped from the p into a holding tank from which it fed into the centrifugals, perforat baskets rotating 1200 to 1800 rev lutions per minute in which t mother liquor is thrown off fro the crystals by centrifugal forc The crystal, (raw sugar) are ba ged and the mother liquor return to the pans to be boiled again a yield further sugar. The second bo ing yields sugar and a mother liqu

lled "2nd molasses" which is re-
rned to the pans for boiling into
third and final strike. Due to
e low concentration of sucrose in
is molasses the crystals of the
ird strike are usually much small-
than those of the first and sec-
d strike. The third massecuite is
t dried immediately in the cen-
ifugals but is placed in large tanks
here it is cooled by water circulat-
g in coils, and stirred by arms on
rotating shaft. As the mother
quor cools and becomes more su-
rsaturated, additional sucrose is
posited on the small crystals. Af-
r 30 to 48 hours in the crystalli-
rs this massecuite is spun in cen-
ifugals yielding additional sugar
d final or "blackstrap" molasses,
hich is sold for animal feed or al-
hol manufacture. In actual prac-
e the third strike sugar is seldom
gged, but is taken back to the
ns and used as a footing with
rup for the first strike, and with
rst molasses for the second strike.
new grain from syrup is used
a footing with second molasses
r the third strike.

This is, briefly, the method of
aking raw sugar, which commer-
ally contains 96 to 97% pure su-
ose. The 3 or 4% impurities are
ater and non-sugar solids, mainly
a molasses film remaining around
e sugar crystal. Raw sugar is
ipped in 325 lb. bags or in bulk
rs or trucks to a refinery to be
rther processed into the granu-
ted sugar we are all familiar with.
me factories produce a washed
d dried large grain sugar called
urbinado" which is 99.5% or more
crose, and is used largely by manu-
cturers of chocolate candy. Other
ctories use sulfur (the sulfitation
ocess) to decolorize the juice and
oduce a near white sugar
r direct consumption, known in
e trade as "Plantation Granulated
igar".

In a good raw sugar factory an
erall recovery of sucrose, in the
form of sugar, of 78-82% of the sucrose in the cane is obtained, about 6-8% being lost in the bagasse, 1% in the mud, 8-12% in the molasses, and 1% undetermined loss.

In discussing transportation of cane I mentioned the radius from which cane is obtained for the factory. Most factories grow some of the cane which they grind and purchase additional cane from independent growers. Cane is purchased under a contract based upon the current market price of sugar, the sucrose content of the cane juice, and the purity of the juice, that is, the ratio of sucrose content to the total solids content. Tare weights are obtained and deductions made for leaves and/or mud which is brought in with the cane.

I have attempted to give you a picture of the raw sugar manufacturing operation of Louisiana. Now, I would like to give you an idea of the general situation and outlook as it stands today. The picture is not bright. The industry is beset by problems of declining yields, of rising labor costs, of lowered prices for its products.

First let us consider the yield problem. In this connection it should be pointed out that sugar is made in the field by the plant, and only recovered in the factory. For any real gains in yields, therefore, we must look to the scientists of the Department of Agriculture and the Louisiana State University, who are engaged in breeding and testing new varieties of cane. However, in the last few years we have experienced a reduction in the recovery of sugar in our factories from an average of about 160 lbs. per ton to less than 150 lbs. per ton. This decline is attributed to the adoption of mechanical harvesting methods in the fields. Trashy, often muddy, cane is brought to the factory. The trash, being of higher fibre content, increases the load on

the milling equipment and reduces the grinding rate. In addition, this material comes to the mill with no sucrose, and leaves with 2-3% sucrose, decreasing the recovery. The soil introduced into the cane by mechanical loading is highly siliceous in character and causes rapid wear of the milling equipment and pumps, in fact, everything with which it comes into contact. This soil, together with materials extracted from the leafy trash goes with the juice to clarification. This increases the load on equipment and adds to the quantities of mud which must be discarded, carrying with it some sucrose. However, we now believe that the worst difficulties in clarification, slow settling and difficult filtering muds, are caused by grinding stale, deteriorated cane. Farmers using mechanical harvesting have a greater capacity to cut cane than the mills have to grind it, and tend to cut too much ahead of their loading operation. Since the sucrose in cane, once harvested, inverts rapidly, forming dextrose and levulose, a poor recovery is obtained from cane which has remained too long between cutting and grinding. The remedy for these difficulties lies either in a method of cleaning the cane, removing mud and trash at the factory, or in a harvester in the field which will remove trash, and preferably, will cut and load cane in one operation, eliminating the mud. Such a machine would also tend to overcome the stale cane problem. In Hawaii methods of cleaning cane at the mill have been developed to a high degree. These methods, however, do not appear to be economical. The cost of hauling waste material to the factory will run as high as $1.00 per ton in Louisiana. Besides this, we have the enormous size and cost of the machinery required to clean the cane.

Along with the development of a new harvester the industry is trying to learn more about clarification, a complicated series of rea tions which are not entirely unde stood as yet. Several new materi —bentonite, lignin, calcium carbo ate, and elguanite have been tri with varying success. The effects grinding trashy, muddy, and sta cane carry on into the crystalliz tion process, making the recovery sugar more difficult here als There is need for much more co centrated study of crystallizati operation, and for more applicati in the factories of what is alrea known.

Second in regard to the proble of rising labor costs I will only me tion that the solution to this pro lem will come from the enginee and scientists in the industry w can apply labor saving devices a technological improvements to o process so as to reduce the amou of labor required by the factor This is a big problem in Louisia in view of the fact that many our factories are very old and we built at a time when low wages the South as a whole made it u necessary to design them for mi mum labor requirements. This d advantage can be overcome, but o ly by the expenditure of consider ble amounts of additional capital.

Third, and on top of these oth problems, all of which require ad quate financial resources for the solution, is the lowered price of o product. Since Dr. Efferson, yo next speaker is here to discuss s gar economics, I will but menti that while all other commodi prices have increased in the la three years, since the end of pri control, sugar has declined fro $6.32 per cwt. to $5.55 for raw s gar delivered in New Orleans.

Sugar is the cheapest food in t market. At today's retail prices t housewife can buy 1,000 calories food in the form of sugar for 5 This price situation can be remedi easily since the supply of sugar f this country is controlled by t

epartment of Agriculture. We do ot advocate Government controls, it since it is a declared adopted olicy of this country to support farm rices, we do feel that sugar proicers, both beet and cane, should ceive the same "break" as proicers of cotton, butter, eggs, and her commodities. The things we ust purchase have increased in st, the price of our product is wn, and our purchasing power is paired.

It is interesting to note that ouisiana was the creator of the ntral factory idea in the manure of sugar. In the early days of gar production, each plantation d its own mule or oxen powered ill and made sugar or syrup in en kettles. It was in Louisiana, at the principle of quadruple effct evaporation, the vacuum pan, d the steam driven mill were first plied. As a result of these improvements, operations were centalized in one large factory servg a number of adjacent plantations. This idea spread from Louisiana throughout the sugar producing world. For a number of years after this early period other areas perhaps surpassed Louisiana in technological improvements. However, in the last few years Louisiana has pioneered the application of shredders to the milling tandem, of the steam turbine drive for sugar mills, and of a new type hydraulic accumulator for applying pressure to the mill rolls. We, in the industry, feel that despite the many problems we face, we can survive for another 175 years by the application of scientific progress to cane growing, sugar manufacture, and by-product utilization.

BLACKSTRAP

(Continued from page 244)

lasses is also used to some extent in hog, sheep, horse and poultry feeds. If more feed mills were located near the source of supply of blackstrap, a considerable savings in transportation costs could be realized by these mixers.

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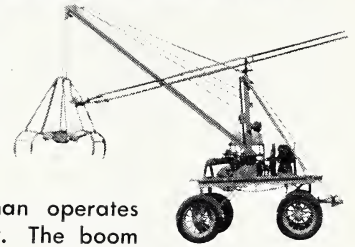

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Johnson Grass Control

Louisiana Bulletin Number 442 the Louisiana Agricultural Expe ment Station, the title of which "The Control of Johnson Grass Sugarcane Fields", is now off press and in the hands of the co ty agents for distribution.

The Bulletin is the work of E. Stamper and S. J. P. Chilton. tells the farmer in simple langua what to do to control Johnson gr in the cane fields.

The picture on the cover of t issue of THE SUGAR BULLET which is also on the cover of Bu tin 442, illustrates graphically results that may be obtained by p perly controlling Johnson grass. is suggested that you get your c as soon as you can.

HETEROSIS

(Continued from page 248)

er of responsibility for doing part in capitalizing on its super qualities. It requires good weath and intelligent farming practic maintenance of soil productivity a proper land management.

BORER

(Continued from page 246)

the borer?

Answer: It is a stomach poison

Question: When is the best ti to dust?

Answer: Dusting early in morning is best. If you get behi dusting late in the evening may used.

Question: How about hand gu and dusting machine?

Answer: These two methods not practical. Machine dusting m be used to an advantage in pla which do not lend themselves to a plane applications such as areas the vicinity of telephone poles, tre factories, etc.

Question: What should we do w corn infested with sugarcane b ers?

Answer: Experiments have sho

at the borer cannot be controlled fectively in corn.

The best thing to do is to cut e corn for feed or plow it under. ie borer will migrate from the rn to the cane field.

Question: How about spraying r borers?

Answer: This method of applying ison is only in the experimental age.

Mr. Dugas ended his discussion stating that the County Agents ere holding schools to teach the rmer how to make borer counts in effort to speed up the dusting ogram.

LVOVE

(Continued from page 247)

assuming his duties as Assistant rector. Since 1948 he has admin- ered the sugar procurement ac- ities of the Commodity Credit rporation, the allotment and mar- ting controls under the Sugar Act 1948, the sugar marketing re- arch program, and the work of e Department for the development a new International Sugar Agree- nt.

Mr. Elvove has served the Depart- nt of Agriculture in various co- cities since 1936, entering the vernment service as an agricul- al economist first with the Reset- ment Administration and later th the Bureau of Agricultural onomics. During the war, he ved in the United States Navy. attended the University of Mary- d, the University of Massachu- ts and Harvard University, and ds the degrees of Bachelor of ence and Master of Arts. He also d the rank of Adjunct Assistant fessor of Agricultural Economics the University of Massachusetts.

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THE SUGAR BULLETIN

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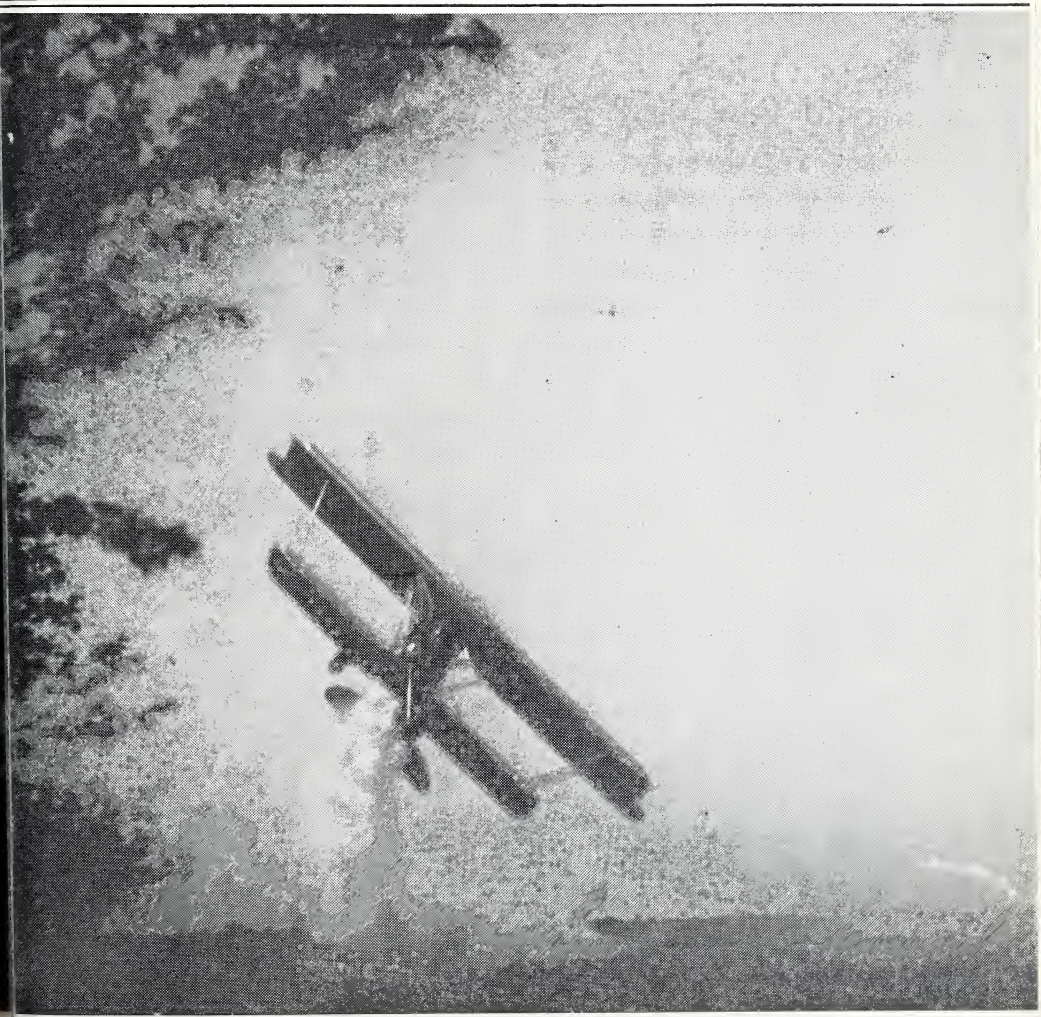

Dusting Cane By Plane

THE
SUGAR BULLETIN

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MARCEL J. VOORHIES, Editor

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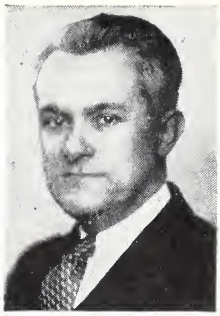
IN WASHINGTON WITH C. J. BOURG



Washington, May 16, 1950

hairman,
ommittee for Reciprocity
Information
ariff Commission Building
'ashington 25, D. C.

ear Sir:

This statement is submitted in the atter of the intention, announced pril 11, 1950, of the Interdepartental Committee on Trade Agreeents to conduct trade agreement gotiations with 17 countries. The ndersigned are interested in the riff on sugar and related articles covered by paragraph 5 of the ariff Act of 1930.

This statement is submitted on half of the members of the

American Sugar Cane League
Association of Sugar Producers of Puerto Rico
Farmers & Manufacturers Beet Sugar Association
Florida Sugar Producers
Hawaiian Sugar Planters' Association
United States Beet Sugar Association

The present general rate of duty sugar is only 27½ percent of the te enacted in the Tariff Act of 30. The rate now in effect on ban sugar is only 25 percent of e 1930 rate. These low rates of ty are completely inadequate for e protection of the domestic sugar dustry. The adoption of these w rates would have brought dister to the domestic sugar indus- had there not been in effect a quota system regulating the importation of sugar into the United States.

Sugar quota regulation, first enacted in 1934, is now embraced in the Sugar Act of 1948. This law, enacted August 8, 1947, took effect on January 1, 1948, simultaneously with the expiration of the Sugar Act of 1937. The new Act is for a term of five years ending December 31, 1952. In reporting the bill to the House and Senate, the House Committee on Agriculture and the Senate Committee on Finance stated: "It should be pointed out that this bill is a short term measure designed to meet the postwar adjustment problems in the production and distribution of sugar." In making this statement, the Committee gave recognition to the fact that production and consumption of sugar and world trade in the commodity have undergone drastic changes since the outbreak of World War II and that an extended period will be required for working out the adjustments appropriate for the years ahead. Any trade agreement likewise should recognize that the sugar industry of the world is just entering into a tremendous postwar adjustment which makes it imperative, for example, that no concessions in rates of duty on sugar imported into the United States be made on other than a contingent basis. Specifically, in conducting trade agreement negotiations, the Government should give recognition

(Continued on page 269)

AMERICAN SUGAR CANE LEAGUE MAKES VIGOROUS OPPOSITION TO INCREASE IN RAIL FREIGHT RATI

Vigorous protest and opposition to a proposed 8% increase in intra-state railroad freight rates on sugar cane and sugar was made by the American Sugar Cane League at an all day hearing held before the Public Service Commission, at Baton Rouge, on Monday, May 1, 1950. The hearing was attended by a substantial group of industry representatives. The proposed increase, if authorized, would mean thousands of dollars in additional freight costs on the transportation of Louisiana sugar cane and sugar. It is estimated the additional cost to the Louisiana sugar industry would range from one hundred fifty thousand to two hundred fifty thousand dollars per year.

The case was heard on the petition of the Railroad Companies to re-open L.P.S.C. Case No. 5068, in which the Public Service Commission issued an order on August 31, 1049, authorizing a general 8% increase in intra-state rail freight rates, but from which increase certain commodities, including sugar cane and sugar, were excepted. In their petition to reopen the proceedings the Railroad Companies urged that there should be no excepted commodities, and that they should be authorized to increase their intra-state rates on these excepted commodities the full 8%. The rail carriers contended, because of the exceptions, they were being "deprived of a substantial portion of the anticipated additional revenues on intra-state traffic so sorely needed by them," and that an undue and unreasonable preference resulted in favor of these excepted commodities moving intra-state. Several expert witnesses and numerous exhibits were used and offered by the railroads in an effort to substantiate their case.

The League was represented at the hearing by its attorney in c laboration with the New Orlea Traffic & Transportation Burea which is also retained by t League. The League's attorney a a representative of the Bureau su mitted comprehensive evidence a data at the hearing in suppo of the League's opposition to t freight rate increase.

Mr. Louis A. Schwartz, Gener Manager of the New Orleans Tra fic & Transportation Bureau, in te tifying as a witness for the Leagu submitted written exhibits to sho the present freight rate advanta enjoyed by the producers of sug beets and beet sugar over the pr ducers of Louisiana sugar cane a cane sugar, and that this propos increase in Louisiana, if authorize would create additional inequitie

Dr. J. Norman Efferson, Profe sor of Agricultural Economics a Research Economist for the Agr cultural Experiment Station of t Louisiana State University, as a wi ness for the League, presented comprehensive summary of t economic status of the Louisia sugar cane growers and processor and demonstrated through his co studies made in the Louisiana s gar cane industry and exhibits pr pared therefrom that the indust has not been in a favorable pro position in recent years, and likely to be in an even less favorab position in 1950. In response questions propounded by t League's attorney, Dr. Efferson te tified that in his opinion neither t average Louisiana processor n grower is in a sufficiently sou financial position to bear any add tional increase in costs.

The principal witnesses from t industry were J. J. Munson, Pres dent of the American Sugar Ca League and President of The Sou

(Continued on page 266)

TRENDS IN SUPPLY AND DEMAND

(From the May 11th Issue of the Journal of Commerce)

Sugar is adjusting to prewar normalcy as production is restored and competitive selling once again takes over. The weight of production is indicated in the decline since the start of the year of 55 points to 3.20¢ f.o.b. Cuba for world sugar. Competitive selling is apparent in restoration of the spread of 20 points during the war years. An International Sugar Agreement, if consummated, may help to prevent return of extremely low prewar prices.

Current Conditions

Cane refined sugar at the start of 1950 was selling at 8.05¢ and beet refined at 7.95¢. Today, cane refined is 7.70¢ and beet refined 7.50¢ —down 35 and 45 points, respectively.

The drop in prices was promoted mainly by pressure to sell raw sugar during the heavy season of production in the first quarter of the year. In January, raw sugar sales were passing at 5.80¢. By April 4, raws were down to 5.45¢. As the pressure of raw production and early selling subsided, raws recovered to today's price of 5.70—a 25 point gain.

Yet refined sugar has remained at its low point. The reason is that refiners must meet the competition of the beet processors who have a crop coming up of 1,800,000 tons and don't want to start the new year with a surplus. Their only "out" is to absorb more of the freight rate and move sugar into what is normally regarded as cane refiners' territory in the East. The beet pressure will be offset somewhat by seasonal pick-up in the re-

(Continued on page 264)

NOTICE OF CONTACT COMMITTEE MEETING

Tour at 8:30 A. M., Thursday, June 15th, Auditorium, Federal Experiment Station, Houma, La.

Mr. Stephen C. Munson, Chairman of the Contact Committee of the American Sugar Cane League, is calling a meeting of his Committee and the Industry for 9:30 A. M., Thursday, June 15th, 1950, in the Auditorium of the Federal Experiment Station, Houma, La.

THE MAIN PURPOSE OF THE MEETING IS TO INSPECT AND DISCUSS NEW UNRELEASED VARIETIES OF SUGAR CANE AND TO DECIDE ON ANY RELEASES TO BE MADE THIS YEAR.

REPORTS OF THE VARIOUS FEDERAL SCIENTISTS WILL BE RECEIVED AND DISCUSSION OF EACH REPORT WILL BE LED BY THE SCIENTIST PRESENTING THE REPORT.

FROM 8:30 A. M. TO 9:30 A. M. FIELD TOURS WILL BE CONDUCTED TO EXAMINE AND INSPECT THE NEW VARIETY PLOTS.

ALL PERSONS INTERESTED IN SUGARCANE ARE CORDIALLY INVITED AND URGED TO ATTEND THE JUNE 15th MEETING.

CROP INSURANCE

Summary of talk by Secretary of Agriculture Charles F. Brannan at National Crop Insurance Conference, Shirley-Savoy Hotel, Denver, Colo., May 16, 1950, 7:00 p.m. MST.

Expanded use of crop insurance is necessary to "fill a gap" in other efforts for economic stability in agriculture, Secretary of Agriculture Charles F. Brannan declared in addressing the National Crop Insurance Conference at Denver, Colorado.

The conference was attended by PMA committeemen and State crop insurance directors handling administration of the Federal crop insurance program. Secretary Brannan spoke at the conference's annual banquet at the Shirley-Savoy Hotel.

Crop insurance and farm price supports have distinct but related roles in the Department of Agriculture's over-all efforts for agricultural stability, he declared, adding that "both are needed to keep the rest of the Nation's economy sound."

Both assist farmers toward maintaining "a reasonably stable income at a fair level—a level which is equitable to farmers and in the best interest of the other economic groups within our population," Secretary Brannan explained.

"National interest has currently centered on one phase of our farm programs — upon price supports. That is rightly so, for prices and incomes are the very heart of any sound, over-all farm program. And price support is the most effective device or method yet authorized to keep our fluid farm prices in balance with non-farm prices.

"But price supports, important as they are, are not the only program we have undertaken to contribute toward agricultural stability."

Secretary Brannan reviewed how agricultural research, farm credit programs, conservation, rural electrification production guidance, marketing assistance, and all of the Department's educational efforts co tribute to the "common purpose."

"However, all these constructi efforts toward agricultural stabil ty still leave a gap unfilled—the g of crop failure," he declared.

"Even the most efficient farme making the best possible use of t results of agricultural research a practicing the most approved co servation methods, is always su ject to whims of the weather. Su forces of nature as drought, floo hurricane, and freeze are all beyo his control."

Good prices, he emphasized, are little importance to a farmer wh because of such natural hazard is unable to produce anything sell.

For real stability in agricultur he added, "something more is nee ed to meet the very real emergen of crop failure.

"That is the role of our crop i surance program."

After experimental periods what was virtually an untried fiel excessive losses are being eliminat and improvements made in the pr gram's operations sufficient to ju tify expansion of crop insurance a sound business basis, Secreta Brannan said. Experience has no been obtained to indicate clear that a soundly operated progra can be developed on a Nation-wi basis, he said.

"But farmers must realize it is straight business proposition—pr tection of their crop investment f a premium," he explained. "It necessary to build the program that sound business basis—buildi up reserves in good crop years provide indemnities in poor cr years.

(Continued on page 264)

Irwin L. Saveson Honored

News has been received from ashington that Mr. Irwin L. Save-n, who is known to all Louisiana gar cane farmers for his untiring ork towards the improvement of ne land drainage, will be pre-nted a Special Merit Award today May 25th) by the Secretary of the nited States, the Honorable Charles Brannan.

Mr. Saveson is being honored for s work as a drainage engineer ith the Soil Conservation Commis-on in "designing an improved sys-m of field drainage for sugar cane nd and developing effective and fficient methods of constructing ainage works."

Several articles on the drainage sugar cane lands by Mr. Saveson ave been in THE SUGAR BULLE-IN, the latest appearing in our pril 1st, 1950 issue beginning on age 198.

Because we know that the im-rovement Mr. Saveson has brought the Louisiana sugar industry has een instrumental in increasing its verall agricultural efficiency we re very happy to publicly extend ur congratulations to him for the nor he is receiving in Washington day. He richly deserves the recog-tion.

enderson Refinery to Move

Mr. Adam Gamble, vice-president the Henderson Sugar Refinery hich is an institution that has been art of the Louisiana sugar indus-y since 1872, has announced that s Company will move to Blakely land, opposite Mobile, Alabama, the Mobile River near the Ala-ma State docks and will erect a ew 300,000,000 capacity refinery ere. The new plant is scheduled be ready about the middle of 951 and work will begin on its rection within the next two months.

In explaining his decision to seek a new location for the refinery Mr. Gamble stated that "The present refining management feels that it is necessary to build a new refinery to keep pace with the competition in the growing adjacent markets. New Orleans has already seven other sugar refineries so that the choice of location was influenced by strong competition already existing ing the New Orleans area." Mr. Gamble also stated that the present location of the refinery in the congested business area of New Orleans makes it very difficult to accommodate the large trucks in which most of the refined sugar is now shipped and that it would be wiser to relocate the new refinery in Mobile where "there is an absence of and a need for a new refinery."

Technologists Meet June Sixth

The Manufacturing Section of the American Society of Sugar Cane Technologists will hold its next meeting on June 6th, in the auditorium of the Sugar Experiment Station at Houma, Louisiana.

The meeting will convene at 10:00 A.M. and is expected to last into the afternoon.

The tentative program arranged by Mr. Leon Godchaux, II, Chairman of the Manufacturing Section, will be as follows:

1. The use of the DeLaval Separator for the clarification of Oliver Filtrate. (*Charles Savoie*)
2. Application of the Bowser Filter to Oliver Filtrate Clarification. (*George E. Shelly*)
3. Turbine Application to Cane Mill Drives. (*Frank A. Vought*)
4. Differential Pressure Tests with Edwards Accumulators. (*John Fitzhugh*)
5. The Effect of Deterioration of Cane Quality. (*Clements Helbling*)
6. Bulk Shipment of Raw Sugar by truck (*Charles Lemann*)

Arthur G. Keller,
Secretary

INSURANCE

(Continued from page 262)

"Crop insurance is both a national and a local program. Each insured farmer has the protection of national reserves. However, more and more local farm leaders, farmers, and businessmen are realizing that a country's crop insurance program is in effect a county business, and should be operated as such. Success requires that local premiums over the years must pay local losses. When the local business character of the program is understood, there is closer supervision and study at the county level, and more efforts made to reduce the risk in order to cut the cost."

Crop insurance programs are now operating in 552 counties, with authorization voted by Congress for its gradual expansion during the next four years.

In cumulative totals for the past five years, insurance programs on wheat, corn, flax, tobacco, beans, and multiple crops have all ended up "in the black," with more premiums collected than indemnities paid. Only the cotton program is still "in the red," losses exceeding premiums in all but one of the five years, Secretary Brannan revealed.

Building up county reserves on a "County mutual" basis is entitling counties to "earn" reduction insurance rates, he added. Thirty-one counties now have reserves of over $200,000, and two counties—Stutsman, North Dakota, and Chouteau, Montana, have reserves of over $600,000. Valley County, Montana, still has a reserve of $77,858 after paying out indemnities of $457,6 on heavy wheat crop losses in 19 If all the farmers eligible in Val County had taken advantage of t insurance protection, Secreta Brannan said, the indemnities wo have reached $1,695,072.

"With drought, dust and crop d aster having hit a number of are not far from here in recent mont it's time for farmers and busine men alike to realize the importa of crop insurance to their financ security if crop disaster happens strike," Secretary Brannan declar

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TREND

(Continued from page 261)

fined sugar demand, which is o about a month away. Refiners wo have to cut their prices but un urgent beet selling is off the ma ket, they won't be able to ra them either.

Potential Supply

For the past two years now, had been expected that big cro would catch up with Cuba and th the Island would have a substant surplus at the year end. But ea year, unexpected demand in t world market developed and Cu has disposed of successively l crops. This year, however, it a pears as though Cuba will have carry-over of larger than norn working stock. Only this week, became apparent that the crop w hit 6,000,000 short tons, raw va —about 500,000 tons more than l year and the second largest record. Meanwhile, Cuba's outl are shrinking. The Philippine a U. S. beet producers have expand production; European absorptio are less because of greater produ tion on that continent.

Although its basic quota in t United States is only 2,000,000 to approximately, Cuba with deficie cies of other areas to fill and w some gains resulting from high United States consumption, will sh

ıere about 2,750,000 tons this year. \bout 2,000,000 tons will go to the vorld market; 250,000 to local con-ıumption. The remainder, 1,000,000 ons, will go into surplus.

Puerto Rico, had not the United States Sugar Branch officials baled hem out by selling 220,000 tons of ts crop in Germany, would have ıad a surplus this year. Ordinarily, hat business would have gone to Cuba. It was only by cutting hrough a lot of red tape that the Jnited States was able to effect the ransaction. But Puerto Rico's next rop will be 1,300,000 tons, indi-ating a surplus of about 200,000 ons. The beet processors, Louisi-na, and Florida cane growers, and Iawaii, all suppliers of the United tates market, will have big crops —more than enough to meet United tates demand.

Prospective Demand

Demand in the United States this ear will run in the neighborhood f 7,600,000 tons, based on present rospects. The Secretary of Agri-ılture, at the start of the year, es-mated consumption at 7,500,000 ons and set quotas for individual roducing areas accordingly. The uotas prevent any undue market ressure. Although if too much su-ar is behind the quota wall, it xerts a detrimental influence price-ise even though it cannot be en-ered for consumption.

During the first four months of his year, distribution has been at rate of 7,200,000 tons. The rate ill improve sharply, however, over ıe next few months as seasonal ıprovement develops. The demand the coming months is certain to heavy because "invisible sup-ies" are low. Industrial users have mited their purchases these ıst few months (1) because they ere made aware of the prospect a decline in refined prices and 2) because, with labor costs run-ng so high, they prefer to move a car of sugar to their plants as needed rather than store and pay extra handling charges. If political or economic factors should later prompt any sudden spurt in demand, the industrial users would be in a vulnerable position. Basically, the industrial users' small holdings are a potentially bullish market factor.

Price Outlook

Earlier this year, as European demand for Cuban sugar moved toward a peak, the world price advanced to 4.75¢ a lb., f.o.b., which was nearly at par with the United States domestic price. Since then, however, the demand in the world market has petered out. The potential surplus in Cuba has become more apparent, and the price has declined to 4.20¢—down 55 points.

Attempts are being made now to restore the International Sugar Agreement. On a world-wide scale, surpluses were curbed, in the prewar years, by a restriction on carryover stocks which automatically curbed production—at least in theory. If put into operation in time, the International Agreement might prevent the return of a glutted sugar market. Experience has proved that when the world market for sugar is depressed, the United States market, despite the quota system, is adversely affected also. Even domestic beet sugar interests favor the agreement now, and the indications are that the United States will use its influence in making a world-wide agreement work. It would be a stabilizing influence.

Whether or not there is an International Agreement, world sugar over the long term will probably continue to adjust to a somewhat lower basis as production outruns demand. For the immediate months ahead, however, the domestic refined market should improve slightly with the pick-up in seasonal demand. Raws are about at the top.

PROTEST

(Continued from page 260)

Coast Corporation, F. A. Graugnard, Jr., President of St. James Sugar Cooperative, Inc., and Evans Farwell, Vice President of Milliken & Farwell, Inc. The testimony of these witnesses related particularly to economic conditions in the Louisiana sugar industry; the material increase in labor and other operating costs in recent years and the decline in return from sugar cane, sugar and molasses; and that neither the processor nor grower has any control over the price of his product and cannot add any increase in cost to his selling price. These witnesses also testified that an increase in rail freight rates would necessarily have the effect of causing additional diversion from rail to truck transportation, thereby causing a decrease in the revenues of the railroads rather than an increase.

Among the industry representatives present at the hearing, most of whom testified in connection with the League's opposition, were: Sabin J. Savoie, of Lula Factory; Felix Savoie, of Westfield Factory; L. J. Boudreaux, of Caldwell Sugar Cooperative, Inc.; Louis J. Wilbert, of A. Wilbert's Sons Myrtle Grove Factory; Casimir Graugnard and Ellis Roussel, of Caire & Graugnard; W. C. Byrne, of Southdown Sugars, Inc., J. A. Dornier, of Helvetia Sugar Cooperative, Inc.; E. W. McNeil, of Harry L. Laws & Company; Walter Godchaux, Jr., of Godchaux Sugars; A. E. Hughes, of Iberia Sugar Cooperative; John Caffery, of Columbia Sugar Company; Frank Carruth, of Catherine Sugar Company; Horace Wilkinson III, of Poplar Grove Planting and Refining Company; Whitaker Lonsdale, of Sterling Sugars, Inc., and Clarence Savoie. These witnesses supported and substantiated the testimony of Mr. Munson, Mr. Graugnard and Mr. Farwell.

Dr. Efferson fully and effectively presented to the Commission economic conditions in the Louisiana sugar industry. He testified in part as follows:

"Economic studies of the cost and returns from the operation of various segments of the Louisiana sugar cane industry have been conducted by the Department of Agricultural Economics of the Louisiana Agricultural Experiment Station since 1937. In each year, the same general methods of collecting and analyzing the data were employed in order to make the results from year to year directly comparable. For purposes of analysis, the Louisiana sugar cane industry was divided into three general business groups: (1) the raw sugar mill industry, since most of the sugar cane produced in the State is processed directly into raw sugar and molasses; (2) the large-scale sugar cane farm, on which most of the labor is hired and on which double entry accounting systems are used to record results from year to year, and (3) the family-type farm, on which most of the labor is performed by the farm operator and members of his family. In each year, separate accounting studies were made of these three different parts of the industry.

Since the beginning of this series of studies, 30 different publications have been released by the Louisiana Agricultural Experiment Station covering the various phases of the work and the variations from year to year in costs, returns, and net profits. I have with me five copies of each of the four most recent publications on these studies. These publications are entitled: (1) "Financial Results of the Operation of Large Sugar Cane Farms in Louisiana for Nine Years, 1937 to 1945," La. Bulletin No. 419; (2) "Financial Results of the Operation of Raw Sugar Mills in Louisiana for Nine Years, 1937 to 1945," Louisiana Bulletin No. 418; (3)

Costs and Returns on Family-Type ugar Cane Farms in Louisiana, 946 and 1947," Louisiana Bulletin Jo. 438; and (4) "The Louisiana ugar Cane Cost Studies, 1937-948," Mimeographed Circular No. 10. I desire to offer these publi-ations in evidence in connection ith my testimony and ask that ey be marked for identification. dditional copies of these publica-ons and copies of the other publi-ations on these studies can be sup-lied, if desired.

I should mention here that these udies do not include the results f the 1949 crop year which was mpleted during the early part of 950. Several months are required obtain the necessary data from e books and records of the mills nd farms and this work has not een completed on the 1949 opera-ons.

I have prepared in table form summary of the results of raw ugar mill operations for the 1937-8 period, which summary I have esignated as Table 1. I offer this ble in evidence and ask that it be ven the necessary mark for iden-fication. This table indicates that three of the twelve years studied, n average net loss occurred in the ouisiana raw sugar industry. For e entire period, the Louisiana raw ugar industry earned an annual net come amounting to 4.6 per cent their investment in land, build-gs, and equipment. In the most cent two years, 1947 and 1948, rnings declined to only 1.9 per nt of the investment indicating decline in relative profits. This cline was due to increasing costs d a declining price of raw sugar. his declining earning factor has en further emphasized by the fact at six Louisiana sugar mills, or out 10 per cent of the mills in e State, ceased operations after e 1948 grinding season. These ills earned much less than the erage and ceased operations be-cause of mounting losses.

A similar picture is indicated for the large sugar cane growers. Average earnings for these large sugar cane farmers are presented in Table II which I have prepared and now offer in evidence and request that it be given the proper mark of identification. In the twelve-year period, net losses occurred in six years, and the average net income in relation to total assets was less than one per cent for the entire period and only one-tenth of one per cent for the most recent two-year period, 1947-1948.

Net returns on the smaller family-type farms are summarized in Table III, prepared by me, which I offer in evidence and request that it be given the proper mark of identification. These figures indicate a net loss in three of the nine years studied including the most recent year and an average return to capital for the entire period amounting to 1.2 per cent. It should be noted that the net return data for all three segments of the industry are prior to Federal and State income taxes.

These facts indicate that these various segments of the Louisiana Sugar Cane Industry have not been making high earnings in the past 12 years and that earnings have declined to the critical point since the end of the war. This has been due to a drastic decline in the price of raw sugar since the end of the war. During the war, raw sugar was priced at 6.32 cents per pound. The current price is about 5.65 cents per pound or almost 20 per cent below the price during the war years. In addition, the price of the principal by-product of the industry —blackstrap molasses—has declined from 28 cents to about 5 cents per gallon during the same period. Since both the producer and the processor of sugar cane in Louisiana are paid in relation to the price of raw sugar and molasses in accordance with regulations made by the

United States Department of Agriculture under the Sugar Act of 1948, both the producers and the processors have shared this decline in income. Growers received about $8.50 per ton of sugar cane sold in 1947 as compared with about $7.25 per ton in 1948 and 1949, including all government payments. Since their price is based on the market price of raw sugar and molasses, returns in 1950 cannot be expected to be higher than in 1948 and 1949 and probably will be lower.

In addition to the decline in prices, another factor is likely to seriously affect earnings in the Louisiana sugar cane industry in the near future. On January 24, 1950, an amendment to the Fair Labor Standards Act became effective, establishing a 75-cent minimum wage which is applicable in the raw sugar industry. Previous to this amendment the minimum wage was 40 cents per hour.

An analysis of the labor costs in the raw sugar mills studied during the forty-cent minimum wage period, as compared with the probable costs for the next season with seventy-five cents as the minimum indicates that total labor costs per mill will be increased by about $30,000 per year. Since the average net income per mill for the previous 12-year period was only about $20,000 per mill and the net income for the 1947 and 1948 period only about $9,000 per mill, the effects of the added labor cost are likely to be serious.

In conclusion, it should be emphasized that the financial returns presented herein represent the average for each segment of producers each year. In any year, some producers are more efficient or have more favorable conditions than others and make higher than average returns while others less favored make incomes much less than the

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verage. For the area as a whole, owever, the facts indicate clearly hat the Louisiana Sugar Cane Industry has not been in a favorable rofit position in the last few years nd is likely to be in an even less avorable position in 1950. Any factor which would tend to increase osts is likely to further aggravate his situation."

The members of the American ugar Cane League will be advised hrough this medium as soon as a ecision is rendered by the Public ervice Commission.

N WASHINGTON

(Continued from page 259)

o the fact that the import quotas pon which the domestic sugar industry must rely as a substitute, in art, for import duties adequate for s protection will expire on December 31, 1952, and under certain circumstances may be suspended at any me.

In the first reciprocal trade agreement with Cuba which provided for reduction in the rate of duty on ugar, recognition was given to the urpose and temporary nature of nport quotas on sugar by including the agreement that the reduction the rate of duty on sugar would ot apply during any time when nport quotas on sugar were not effect. This policy has not been llowed in subsequent agreements ith Cuba nor was it followed in e trade agreement entered into ith Peru in 1942. Consequently, e domestic sugar industry has en placed in the precarious posion of having adequate tariff proction withdrawn with no assurnce that protection by means of nport quotas will be maintained.

In recent years differences in sts of production, once a yardstick r measuring tariffs, have been mpletely ignored. Nevertheless, it ems worth while to point out that e last investigation by the United ates Tariff Commission, completed in 1934, indicated that the difference in costs of production between the United States and Cuba was $1.50 a hundred pounds. In view of higher wage rates, higher taxes, and higher costs of all kinds in all domestic sugar producing areas despite increased costs in foreign areas, it is a fair assumption that the differences in costs today are at least as great as they were at the time of the Tariff Commission's study. Yet the present rate of duty on Cuban sugar of $0.50 a hundred pounds equals only one-third of the difference in costs of production, as determined by the Commission.

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The need for protection of t domestic industry against forei sugar is a reality. It arises from number of causes, but greater ef ciency on the part of foreign pr ducers is not one of them. Forei producing areas have advantages lower wage rates, cheaper land, a lower taxes, but they can claim superiority over domestic produce either in the yield of sugar per ac or in the utilization of labor. the contrary, an average acre cane or beets in the United Stat produces more sugar than an ac of cane in Cuba and the domest sugar is produced with more ef cient use of higher-priced labo Minimum wages for field labor the domestic sugar industry a established by the Secretary Agriculture. Factory wage rates a subject to the standards establish by Federal law, and in most case are higher than the legal requir ments.

In the face of successive redu tions in duties, the continued oper tion of the domestic sugar indust in the period immediately befo World War II—1935 to 1941—w possible only because of the mai tenance of the quota system, no embodied in the Sugar Act of 194 The Sugar Act expires on Decemb 31, 1952, and domestic produce have no assurance that adequa protective legislation will be e acted.

For the reasons given, the unde signed strongly urge that all r ciprocal trade agreements provid by amendment if necessary, th during any period in which t quotas under the Sugar Act of 19 are not in effect, and upon the e piration of that Act on Decemb 31, 1952, the rates of duty on sug shall automatically increase to t maximum rates authorized by t Trade Agreements Act. A step this direction was taken at Anne whereby the existing reduced du on sugar imported into the Unit

States from countries other than Cuba is to remain effective only so long as the sugar quota and marketing system provided for by the Sugar Act of 1948, or a closely similar system, is in effect in the United States. It is of vital importance to the domestic sugar-producing industry that the further step be taken to provide that maximum authorized rates of duty on sugar shall go into effect immediately upon the suspension or termination of import quotas on sugar. The undersigned urge that this be done.

Very truly yours,

American Sugar Cane League
Association of Sugar Producers of Puerto Rico
Farmers & Manufacturers Beet Sugar Association
Florida Sugar Producers
Hawaiian Sugar Planters Association
United States Beet Sugar Association

/s/ H. B. Boyd

* * *

The State Department has just announced that additional trade agreement negotiations will be had with Denmark, the Dominican Republic, India, Indonesia, Italy and Sweden in addition to the 17 countries previously proposed. It also announced "possible adjustment in preferential rates on Cuban products." Of course, sugar and molasses under Schedule 5 of the Tariff Act are included. Closing date for applications to be heard will be June 5, 1950. Closing date for submission of briefs will be June 12, 1950. Public hearings will open June 19, 1950.

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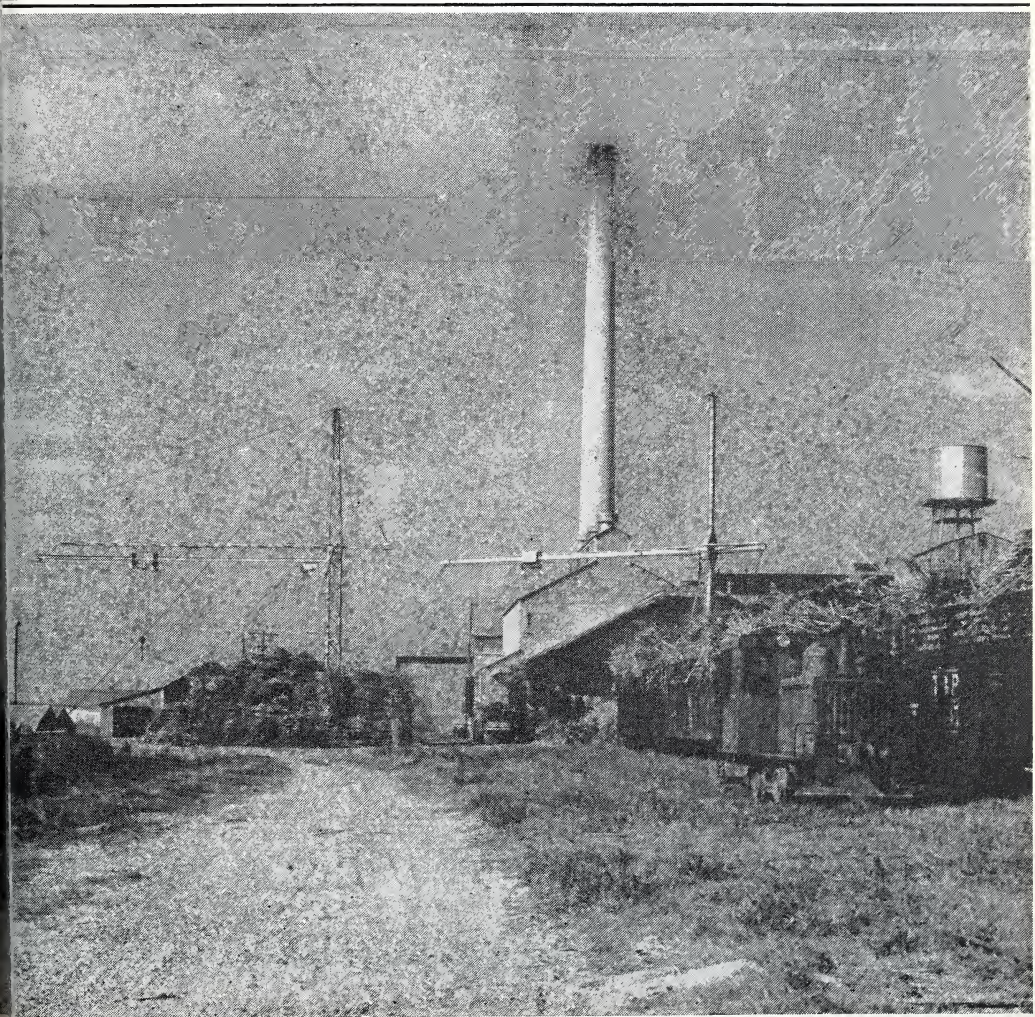

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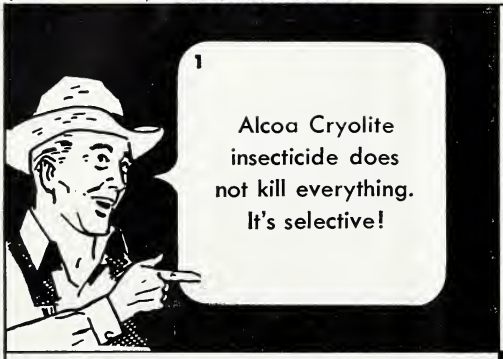

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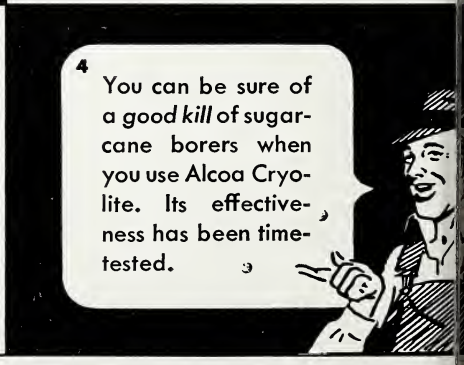

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THE
SUGAR BULLETIN

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MARCEL J. VOORHIES, Editor

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DISEASE TESTING AND INITIAL SEEDLING SELECTION WORK AT THE HOUMA STATION DURING 19

By E. V. Abbott, Principal Pathologist, and Eaton M. Summers, formerl Pathologist[1] Division of Sugar Plant Investigations, Bureau of Plant Industry, Soils, and Agricultural Engineering, Agricultural Research Administration, U. S. Department of Agriculture[2]

Presented at the Houma Meeting of the Contact Committee of the Ameri can Sugar Cane League, Houma, Louisiana, June 15, 1950.

The seedling program at the Houma station was expanded somewhat during 1949 to take care of the increased production of seedlings which resulted from the very favorable breeding season at the Canal Point station, and the desire of the American Sugar Cane League that as many of the seedlings as possible be placed in the field. Approximately 115,000 seedlings were germinated from 179 crosses, 45,000 were potted, and slightly over 40,000 representing 171 crosses were transplanted to the field. Placing this number in the field was possible only by successioning 3½ acres of land that ordinarily would have gone into beans in 1949 and would have been available for seedlings in 1950. The land available for seedling work this year was thereby reduced. However, by using some heavy mixed land on the station it was possible to transplant to the field something over 23,000 of the '49 series seedlings this spring.

The numbers of seedlings studied in various categories during 1949 are shown in table 1. It will be noted that the C. P. numbers of the '49 series came from seedlings of the '43, '44 and '45 breeding years. The small number of C. P. assignments resulted from the higher standards that were adhered to in making the selections; severe borer injury in the nurseries, which made it impossible to obtain a representative chemical analysis from some seedlings (they were dusted four times with cryolite); and the few seedlings available from the '44 breeding season, which ordinarily would have supplied the bulk the new assignments. Very fe seedlings were produced during t 1944 breeding season because of u favorable weather. While the nu ber of C. P. assignments is expect to be larger again in 1950 and f ture years, it is believed the to can be held lower than in rece years by adhering to higher stan ards of physical characteristics a disease resistance. This will be necessity when the large numbe handled in 1949 at Baton Rouge a Houma reach the stage of assigni C. P. numbers.

Single Stool Nurseries

'47 *series.* From the 19,107 see lings of this series surviving in t field, 283 were selected for increa to 8-foot plots, which, with tho selected last year from plant ca brought the total replanted to 3 or 2 percent of the total numb handled. This was somewhat low than the percentage of replantin from single stool nurseries in t past, primarily because of high standards adhered to with resp to type, but also because of seve large progenies in the series wh yielded very few good seedlin Among these, surprisingly, was t cross Co. 281 x C. P. 1165, wh in the past has produced some our best varieties, including C. 36/105 and C. P. 44/101. Only selected were replanted from abo 800 seedlings from this cross in t '47 series.

Some excellent new combinatio were found in this series, parti larly crosses in which F. 36-819 w

(Continued on page 282)

CLARIFICATION OF FILTRATE BY CENTRIFUGING

By: Charles C. Savois, Lula Plantation

Presented at the Meeting of the Manufacturing Section of the American Society of Sugarcane Technologists, Houma, Louisiana, June 6, 1950.

The trend of present methods of manufacturing Raw Sugar is to simplify and at the same time utilize more scientific control. Manufacturers are installing more labor saving devices, and machinery that requires less maintenance, in order to cut down the cost of production to give the public a good product at low cost, and also realize a profit. Some of the scientific labor saving devices are automatic regulators for variable flow of juices, adding of lime to Raw Juice, level controls etc. One of the big labor, space and maintenance saving devices is the continuous mud filter. Most modern factories today have a filter of this type and some several, depending on the capacity of the individual mill and quality of its incoming cane.

Very often the change over, from old machinery to new types of machinery presents new problems. The one presented in this case is that brought on by the introduction of the continuous mud filter, which has replaced the old filter presses. The initial cost of filter presses are high, they are expensive to maintain and to operate, required a lot of space, but the juice coming from the old presses was clear and ready for the evaporators, that is, ready for processing into sugar. The continuous filter has simplified and cheapened this operation, but the juice coming from it is not very clear and requires further clarifying before it is ready for the evaporators. Therefore, the problem is how to clarify without recirculating and to keep the operation from being too costly. Before proceeding with a possible solution to this problem, I wish to mention that under good conditions, that is with good prevailing weather, clean cane and fresh cane, the cloudy juices leaving the continuous filter may be recirculated through the clarifying process with no apparent ill effects.

In the event adverse weather conditions or old cane comes in the factory or a large amount of soil enters with cane, then bad clarification will prevail. The return of the dirty filtrate to the clarification cycle will seriously aggravate the condition and most probably cause the factory to slow down to two-thirds or one-half grinding capacity. If the filtrate is ditched, the clarification will show a marked improvement. The difficulty in clarification is initially brought on by mechanical harvesting of sugar cane, which is a marked improvement in the field, but has introduced a problem to the processor.

Some grinding seasons we have very little of the above mentioned conditions, but normally, we always have some, and no matter if it is for just one or two weeks, if we have something that will keep us out of the red at that time it is worth its weight in gold, so to speak. When all conditions are good we can run very well without anything more than the continuous filter.

We all know that cane juice does not improve with age, and recirculating the filtrate thru the heaters and clarifier is equivalent to ageing it. Therefore, recirculating this juice is against all principles of good operation. Furthermore, the filtrate may be considered the oldest juice in the clarifier as it travels from the top to the very bottom and thru the process of filtering before being removed. If this filtrate can be run directly to the evaporators instead of being recirculated, it would definitely be an

(Continued on page 280)

COMPARATIVE RESULTS OF FOUR GROUPS OF LOUISIANA MILLS, 1949 CRO

Mr. L. A. Mullins, Chairman of the Louisiana State Production and Marketing Administration, mailed a letter on May 23, 1950 known as 1949 Sugar Mill Letter No. 13 comparing the milling results obtained at four groups of Louisiana sugar mills during the last grinding season. This letter and the accompanying tables are printed below:

"Below you will find a study of comparative results from the operation of 47 Louisiana sugar mills producing sugar and blackstrap molasses during the 1949 crop. From this you will note certain recovery differences and we have attempted to point out the reasons therefor.

The differences are largely accounted for in the percentage of sucrose in cane, percent cane, but mill efficiency and boiling house efficiency may play an important part. Also, differences in sucrose, percent cane, may be largely fictitious due to lack of proper facilities for weighing juice, water, or bagasse.

We hope you will find this report interesting and of some benefit to you.

A comparison of the results obtained by 47 of the 54 mills operating during the 1949 crop has been made on the basis of yield per ton of cane. Mills producing direct consumption sugar and edible molasses have been eliminated from the study as being not representative. Grouping of mills is shown below:

	Lbs. 96° Sugar Per Ton of Sugarcane
Group A	Less than 150 pounds
Group B	150.1 to 160.0 pounds
Group C	160.1 to 170.0 pounds
Group D	More than 170.0 pounds

Table I shows the results on the basis of sucrose, % cane, i.e., pounds of sucrose × 100 ÷ 2000. Table II II shows the results on the basis of pounds of sugar, 96° raw basis and sucrose, percent sucrose in cane. Example: Pounds of 96° sugar recove ed per ton of cane in Group A w 144.2, which is equal to—

$$\frac{144.2}{198.23} \times \frac{100.0}{1} = 72.75\%$$

of the sucrose in cane expressed 96° raw sugar.

Both Tables I and II show t same basic data, Group A havi the lowest yield ground, 7.2% the sugarcane, while Group ground 41.1% and Groups C and 29.3% and 22.4%, respectively.

Group A produced only 144 pounds per ton of gross sugarcar whereas Group D produced 171. pounds, a difference of 27. pounds. Why this great differenc

In the first place, Group D sta ed with more sugar in cane, 214. pounds, 96° basis, against 198. pounds for Group A, a difference 16.37 pounds. Group A lost 23. pounds in bagasse while Group lost only 19.08 pounds or 4. pounds less.

Group A extracted in juice 174. pounds while Group D was extra ing 195.52, or a gain of 20. pounds. This accounts for all b 6.42 pounds per ton of cane which made up by the difference in boili house losses. Group A lost 3. pounds more per ton of cane blackstrap molasses and 2.94 poun more in filter press cake and und termined.

A glance at the other grou shows the same pattern. Each sta ed with more sucrose in cane th the preceding group or groups. B gasse losses were less or showed l tle change. Sucrose extracted w progressively higher and boili house losses progressively lowe However, the greater increase recovery is largely due to the i creased amount of sugar in cane a the better rate of extraction juice, which is only 69.13% f

VALLACE C. KEMPER TO HEAD SOUTHDOWN SUGARS, INC.

Mr. Wallace C. Kemper, son of ıe late C. D. Kemper of St. Mary arish, La., has been elected Presi- ent of Southdown Sugars, Inc., ouma, La. Mr. E. Newton Kear- y, who has served as President of outhdown Sugars, Inc., since 1930, hen it was organized, was at the ame meeting, elected Chairman of ıe Board.

Mr. Wallace C. Kemper has in recent years been identified with the South Puerto Rico Sugar Co. and had his headquarters in Puerto Rico as well as in New York City. He is a past president of the American Sugar Cane League and before forming his Puerto Rico connections, was conspicuous as a leader in the ranks of those identified with the sugar industry of his home State of Louisiana.

roup A and 74.79% for Group D. On the basis of normal juice su- rose, the difference of 0.43% be- veen the highest and lowest would robably amount to no more than .0 pounds to the ton. It is quite sig- ificant that the group with the ighest recovery of sugar per ton recovered 79.95% of that existing in cane, while the lowest group recovered only 72.75%.

It may, therefore, be said that there is considerable room for improvement in the make-up of mill equipment and the efficiency of operation of low protection groups.

TABLE I
COMPARATIVE RESULTS OF FOUR GROUPS OF MILLS, LOUISIANA, 1949 CROP

	Group A	Group B	Group C	Group D	
	4 Mills Yield Less Than 150 Lbs. T/C	18 Mills Between 150 & 160 Lbs. T/C	14 Mills Between 160 & 170 Lbs. T/C	11 Mills More Than 170 Lbs. T/C	Total 47 Mills
ns of sugarcane	354,184	2,005,617	1,428,485	1,094,769	4,886,055
% of total	7.2	41.1	29.3	22.4	100.0
rmal Juice:					
Extraction	69.13	72.72	72.95	74.79	72.99
Sucrose, %	12.12	12.22	12.55	12.55	12.38
Purity	76.13	75.95	76.71	76.95	76.37
crose in cane, % cane	9.515	9.769	10.045	10.301	9.951
crose in bagasse, % cane	1.135	.881	.892	.916	.911
crose in extracted juice, % cane	8.380	8.888	9.153	9.385	9.040
crose lost in B/S Mols. % cane	1.096	.978	.991	.929	.980
crose lost in press cake, % cane	.184	.139	.173	.120	.148
crose lost undetermined, % cane	.178	.283	.112	.101	.184
crose recovered in sugar, % cane	6.922	7.488	7.877	8.235	7.728
iling house efficiency	94.46	96.49	97.92	99.67	97.61

Prepared by: W. M. Grayson, Chemical Engineer, La. State PMA Office.

TABLE II
COMPARATIVE RESULTS OF FOUR GROUPS OF MILLS, LOUISIANA, 1949 CROP
96° SUGAR BASIS

	Group A		Group B		Group C		Group D		Total	
ns of sugarcane	354.184		2,005,617		1,428,485		1,094,769		4,886,055	
% of total	7.2		41.1		29.3		22.4		100.0	
rmal Juice:										
Extraction	69.13		72.72		72.95		74.79		72.99	
Sucrose	12.12		12.22		12.55		12.55		12.38	
Purity	76.13		75.95		76.71		76.95		76.37	
	Lbs. 96° Raw Basis	% Sucrose in Cane	Lbs. 96° Raw Basis	% Sucrose in Cane	Lbs. 96° Raw Basis	% Sucrose in Cane	Lbs. 96° Raw Basis	% Sucrose in Cane	Lbs. 96° Raw Basis	% Sucrose in Cane
crose in cane	198.23	100.00	203.52	100.00	209.27	100.00	214.60	100.00	207.31	100.00
crose in bagasse	23.65	11.92	18.35	9.02	18.58	8.88	19.08	8.89	18.98	9.15
crose in extracted juice	174.58	88.08	185.17	90.98	190.69	91.12	195.52	91.11	188.33	90.85
crose lost in B/S	22.83	11.52	20.37	10.01	20.65	9.87	19.35	9.02	20.42	9.85
crose lost in press cake	3.83	1.93	2.90	1.42	3.60	1.72	2.51	1.16	3.08	1.49
crose lost undetermined	3.72	1.88	5.90	2.90	2.34	1.11	2.10	.98	3.83	1.85
tal boiling house losses	30.38	15.33	29.17	14.33	26.59	12.70	23.96	11.16	27.33	13.19
crose recovered in sugar	144.20	72.75	156.00	76.65	164.10	78.42	171.56	79.95	161.00	77.66

Prepared by: W. M. Grayson, Chemical Engineer, La. State PMA Office.

CLARIFICATION

(Continued from page 277)

advantage to the process by keeping the fresh juice free from any possible old contaminated juice which may be drawn from the muds; that is by keeping the filtrate out of circulation, because this juice has already begun to invert.

Last crop a centrifuge was installed at Lula Factory and it proved itself in that it will do the job of keeping the factory operating at normal speed without ditching the filtrate; but, how much good it does when grinding conditions are good has yet to be proven.

The centrifuge was installed in an experimental fashion, and not permanently as it was our intention merely to see if it could or couldn't do the job. The experiment proved itself very favorably and it appears that the machine has very good possibilities. First, we piped the filtrate from both the high and low vacuum tanks directly to the machine thru open strainers that were fitted to the top of the centrifuge. The sludge coming from the machine was pumped back to the filter and the effluent was returned to the heaters. The machine ran this way for a maximum of three to four hours on the first series of trials. The machine would have to be stopped after running this length of time, as it would get clogged with waxes from the cane muds. When this was realized as the cause of the trouble, a simple heater was installed and the filtrate heated from 140°-160°F to 180°-200°F. The machine was cleaned and tried again and the wax trouble thus eliminated. The unit ran in this manner for a period of three days or more and the only thing that caused us to stop it was the improvised rig, especially the strainers, which at times would allow a piece of bagasse to get by and plug the nozzles.

At the time these experiments were being conducted, the weather conditions were very good and al the Clarification. The effluent w clear and bright, therefore, it w sent directly to the evaporato and the sludge sent to the filte During the last two weeks of grin ing, the weather changed to warm and rain. Some shippers had ca cut too far in advance of hauli to the mill and some began carryi a large excess of mud, so clarific tion soon begun to get bad. The ce trifuge which had been stoppe as we had gone as far as we coul experimentally, under good weath conditions and the installation w not one to allow continuous oper tion unless necessary, was start up again. The effluent was go so we sent it directly to the evapo ators, the sludge we ditched for while, as we are short of filt capacity, until the situation clear up, which it did in about eight twelve hours. The mill never stopp or slowed after the centrifuge w started. The machine had to stopped after an eight to twelve ho run, because the excessive sand the filtrate had cut the nozzles badly that they had to be replac with new ones which we did n have at that time. Three hou after the centrifuge had been sto ped, the mill had to stop, becau the clarifier had filled with m and dirty juice. We ground at abo half capacity, with a start and st operation, for approximately eigh een hours before we could secu new nozzles. At about 2 p.m. t following afternoon the new nozzl arrived, and within a few minut the machine was back on the li The machine lasted about twel or eighteen more hours hours befo the nozzles wore out again; b during this time, the facto operated at nearly full capaci without any stops. Again, abo three hours after the centrifu was taken off the line, the facto had to stop for bad clarificatio This ended out experiments wi

ne centrifuge for the past crop, as was impossible to secure more ozzles before finishing our sea-on.

As a conclusion the writer will ttempt to give some figures that ill more clearly give the results. he clarified juice is 85-90% of ne total dilute juices coming from ne mills. The sediment from the arifier, or the feed to the filter, is ne remaining 10-15% of the dilute uice volume. This feed to the filter ontains lime salts, precipitated om the dilute juice by the lining peration, a considerable excess of me, as well as shredded fiber from ne cane plus a great deal of actual irt and sand washed from the cane the mills. The total sediment in is mud is generally in the neigh-rhood of 20% by volume, insolu-le material.

The perforations in the screen the filter are in the neighbor-od of .020" in diameter, therefore, is not surprising that a consider-le amount of the solids get by the lter. The combined filtrate gen-ally runs from 2 to 12% total spended solids, and this filtrate considered the feed to the cen-ifuge. The feed to the centri-ge was 2100 g.p.h. maximum 650 g.p.h. minimum, but the verage maximum and minimum ere 1800 g.p.h. and 1200 g.p.h. for grinding rate of 2200 short tons of ne per twenty four hours. During e adverse weather conditions, the ltrate coming from the filter was nsiderably less, which is opposite the general line of thought, and e reason for this is that some less ashing of the cake takes place ith the intention of lessening the lids in the filtrate; but, the fil-ate flow is lessened, mainly be-use the excessive sand and the eneral quality of the mud under ese conditions cause the press ke to become more dense and com-ct on the filter screen thus allow-g less water and juice to seep through and also causing the filter to pick up a thinner cake of mud.

With good weather conditions the feed to the centrifuge was, and remained, in the neighborhood of 1800 g.p.h. the percent solids by volume, 4%. The effluent 1450 g.p.h. with .3% solids and the sludge 350 g.p.h. 10% solids. In bad weather the feed dropped to 1500 g.p.h. with 12% solids, the effluent 1050 g.p.h. with .5% solids, and the sludge 450 g.p.h. with 39% solids. It was at this time that we ditched the sludge and it can readily be seen that the material ditched was a very thick mud.

In conclusion I can safely say that the centrifuge can clarify the continuous filter filtrate at a raw sugar factory containing 2-12% suspended solids at 1800 g.p.h. and 180°-200°F, producing an effluent containing .2%-.6% solids and a sludge containing up to 35% solids. At the lower solids the effluent is clean enough to serve as evaporator feed material. At levels of .4%-.6% it may be recycled to the clarifier. In either case the sludge can be recycled to the filter for further reduction in sucrose. For this coming season the De Laval Separator Company will furnish the Lula Factory with a new all stainless steel centrifuge, containing all the necessary improvements for resisting erosion, for further experiment and a possible conclusion to the idea.

The centrifuge is a continuous type with a number of cone discs placed one in the other spaced about one-thirty second of an inch apart, and set in a bowl. The bowl rotates at high speed causing the juice to travel between the discs where the solids are thrown out of suspension. The juice then rises through the center and the mud is thrown to the outer edge of the bowl and discharged through nozzles.

The centrifuge operates on the principle of difference in specific gravity of materials to be separated,

the same as the clarifier, but the centrifuge increases the relative differences in specific gravities from 8,000 to 10,000 times. Also to further the speed of separation, the mud in the clarifier has to travel through the juices a distance of say twenty feet, in the centrifuge the mud has only to travel through the juices one thirty second of an inch. Multiply these relative differences by each other and one can readily realize how and why the centrifuge can do this job so quickly and efficiently.

DISEASE TESTING

(Continued from page 276)

used as the female. Most of these progenies were small, however, but judging from those that were available for study, this variety appears to be a good source of seedlings of good physical characteristics. To what extent they will inherit the outstanding weaknesses of F. 36-819 —susceptibility to red rot and poor stubbling under Louisiana conditions—remains to be determined.

The excellence of C. P. 43/74 as a male, first noted in the '46 series, was again demonstrated in the '47 series. Although a fairly high percentage of seedlings from this variety are susceptible to mosaic, C. P. 43/74 imparts considerable exce lence in other respects, such erectness, vigorous stooling and ge erally good habit. However, ma are eliminated because of small ba rel diameter.

Among the best new combinatio in this series were: C.P. 29/116 C.P. 43/74; C.P. 43/64 x C. 43/74; F. 36-819 x C. P. 43/74; 36/819 x C. P. 33/229; and F. 36-8 x C. P. 36/105.

'48 *series.* Of the 40,054 seedlin set in the field from this serie 97.5 percent survived through t summer. While detailed examin tion of them will be deferred un the stubble year (1950), a few sele tions were made last fall for plan ing in the Teche area (Katy Pla tation near Franklin), where an e periment is being conducted in c operation with the Department Botany and Plant Pathology L.S.U., to determine whether see lings that do not meet selecti standards at Houma and Bat Rouge, particularly with respect maturity, may prove adapted to th area. If any seedlings do me selection there that are not select at Houma or Baton Rouge, they w be assigned C. P. numbers and di tributed to the agronomists for d termination of their value for co

TABLE 1. Summary of disease testing and field examination by the pathologists of seedlings in pre-C. stage, new C. P. Numbers, agronomic selections and foreign varieties at the Houma Station in 1949.

Classification	No. examined in field	No. inoculated with mosaic	No. inoculated with red rot	Number analyzed chemically				No. Replanted		C. P. Nos assign
				Sucrose[1]	Brix[2]	Controls	Total	C. P. candidates	C. P. candidates	
Pre-C. P. Varieties										
'43 Series	112			93		10	103			
'44 Series	6			4			4			
'45 Series	584			423		58	481			
'46 Series	1,165	212	181	730		116	846		199	
'47 Series	19,223		24	54	694	88	836	283	27	
'48 Series	40,054	58,325			134	9	143	106[3]		
Totals	61,144	58,537	205	1,304	828	281	2,413	389	226	
Foreign Varieties	160	136	112	28		0	28		1[4]	
C. P. Varieties in pathology plots:										
'47 Series	194		9	143		27	170			
'48 Series	162	162	162	159		17	176			
Grand Totals	61,660	58,835	488	1,634	828	325	2,787	389	227	

[1] Laboratory analysis for Brix and sucrose.
[2] Field analysis with hand refractometer.
[3] Planted in the Teche area.
[4] Increased for distribution to the agronomists.

ɔmmercial culture at their best ields.

In February of this year, 674 elections made from the 15,000 eedlings of the '48 series grown t the Canal Point station were lanted at Houma.

Seedling Progenies from Parents Resistant to the Borer

Several years ago the entomologists of the Houma station gave to the late Dr. G. B. Sartoris a list of 11 varieties which, based on their studies in both pathology and agro-

TABLE 2. Progenies from Borer-Resistant Parents Tested at Houma.

Borer Resistant Parent	Crossed with	Borer Resist. Rating[1]	Series Yr.	No. of Seedlings			Percent of Progeny		% M[2]	Remarks
				Surviving in field	Analyzed	Replanted	Analyzed	Replanted		
P. 33/372	C. P. 29/103	S	'45	39	5	0			2	
	C. P. 29/103		'48	178						
	C. P. 29/120	M. R.	'46	1,150	88	40			13	Poor types
	C. P. 34/120	R.	'47	1,135	9	5			14	Poor types
	C. P. 34/120		'48	66						
	C. P. 36/13	S.	'47	279	6	1			8	Poor types
	C. P. 36/13		'48	126						
	C. P. 36/187		'46	770	64	23			37	
	C. P. 43/64		'46	1,207	138	69			57	Some good types; many lodge.
	C. P. 43/64		'47	457	12	2			16	
	C. P. 44/150		'47	8	1	0			12	
	F. 36-819	M. S.	'47	350	38	31			7	Some good types
	P. O. J. 2725		'46	256	33	9			36	
	P. O. J. 2725		'47	83	5	4			26	
Totals			'45-'47	5,734	399	184	7.0	3.2		
Totals			'48	370						
P. 34/79	C. P. 27/34		'46	210	37	27			13	
	C. P. 36/211		'47	33	3	0			13	
	470-45		'47	14	0	0			0	
	597-45		'47	176	3	0			11	
	P. O. J. 2822		'46	33	1	0			0	
Totals				466	44	27	9.4	6.1		
P. 34/120	C. P. 27/48		'48	146						
	C. P. 27/108		'41	211	73	67				Some good types; tendency to lodge.
	C. P. 27/108		'42	965	275	169			16	
	C. P. 27/108		'46	1,012	198	82			25	
	C. P. 27/108		'48	315						
	C. P. 33/224		'48	365						
	C. P. 33/229		'48	708						
	C. P. 33/372	R.	'47	1,135	9	5			14	Poor types
	C. P. 33/372		'48	66						
	C. P. 30/24		'42	1,381	518	365			8	Many good types
	C. P. 30/24		'43	470	88	40			5	
	C. P. 30/24		'45	173	33	12				
	C. P. 30/24		'46	3,924	718	164			42	
	C. P. 30/24		'48	702						
	C. P. 36/105	M. R.	'48	136						
	C. P. 36/138		'48	76						
	C. P. 36/156		'48	91						
	C. P. 36/211		'42	187	27	19			19	Predominantly poor types but some good individuals
	C. P. 36/211		'43	216	20	16			4	
	C. P. 36/211		'46	489	53	24			31	
	C. P. 36/211		'47	969	46	11			5	
	C. P. 36/211		'48	103						
	C. P. 38/12		'46	298	25	12			14	Good types
	C. P. 38/12		'48	65						
	C. P. 42/10		'48	95						
	C. P. 43/64		'48	175						
	C. P. 43/74		'47	9	1	1			0	
	C. P. 43/74		'48	66						
	F. 36/273		'48	137						
	P. O. J 1499		'48	75						
	P. O. J. 2725x C. P. 36/105		'48	280						
	32 MQ 478		'48	147						
Totals			41-'47	11,439	2,084	987	18.2	8.6		
Totals			'48	3,748						
P. 43/49	C. P. 30/24		'48	899						
	C. P. 36/105	M. R.	'48	341						
	C. P. 36/138		'46	403	63	4			55	Poor types
	C. P. 36/156		'46	108	33	1			23	Poor types
	C. P. 38/12		'47	772	106	19			2	Very susceptible to brown spot; low sucrose
	C. P. 38/12		'48	260						
Totals			'46-'47	1,283	202	24	15.7	1.9		
Totals			'48	1,500						

[1] Made by entomologists of Bureau of Entomology and Plant Quarantine. Ratings not available where not shown.
[2] Percent of total progeny eliminated in greenhouse and field.
R = resistant. MR = Moderately resistant. MS = moderately susceptible. S = susceptible.

nomy nurseries at Houma, were rated as resistant to the borer. The varieties were further tested for borer resistance by the Bureau of Entomology and Plant Quarantine in replicated varietal resistance test plots at Houma. They suggested that to the extent feasible these varieties be used in the breeding work at Canal Point with the object of increasing the probability of obtaining borer-resistant commercial varieties. The varieties were: C. P. 33/372, 33/409, 34/54, 34/79, 34/120, 34/165, 34/168, 34/169, 36/197, 36/214, and 43/49. C. P. numbers as breeding canes were assigned to 34/168, 24/169 and 36/214 because of their borer resistance; they had not been so selected for other reasons.

In subsequent years progenies have been tested at Houma of which at least one parent was one of the above, and in 1947 and 1948, two of them were used in a single cross, C. P. 34/120 x C. P. 33/372. Th numbers of seedlings surviving the field, analyzed for sucrose ar replanted from these crosses, a summarized in table 2. The nur ber surviving in the field was cho en for this summary, instead of t total number handled (which a pears in other progeny summari in our reports), since this was t number on which selections for r planting and observations on bor resistance could be made.

Aside from its borer resistanc C. P. 34/120 is a valuable pare in other respects and has been us extensively in the breeding wo for the past 8 years. C. P. 34/7 also, has other qualities which mer its use as a parent. C. P. 33/3 and C. P. 43/49 have less to off aside from borer resistance, ar have been employed in the breedi work primarily for this reaso Blooming, both as to time and e tent, has, of course, been a ve

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mportant determining factor in the se of any of them, and failure to lower has thus far prevented the se of those not listed in the table.[3]

With the exception of some of the eedlings of C. P. 34/120, selections ıade from the progenies listed in he table have not advanced far nough in testing to know what heir commercial prospects may be, r to have been rated definitely on orer resistance. C. P. 34/120 when rossed with some males, notably . P. 30/24 and C. P. 27/108, is roducing many seedlings of good ype, and it may be hoped that its orer resistance will be imparted to eedlings otherwise promising. When rossed with C. P. 33/372, however, ery poor type seedlings result, and rom our experience thus far this ombination seems to hold little romise of producing good commerial types. In general seedlings from . P. 33/372 are below standards ı physical characteristics, but a noable exception is the combination . 36-819 x C. P. 33/372, from vhich there were some very attracive canes in the '47 series. Mr. rassl was able to repeat this cross ı 1949.

C. P. 43/49 has transmitted to a ıajority of its seedlings studied hus far its low sucrose, high susceptibility to brown spot, and tenency to lodge; relatively few of hem have been selected for replantng. However, its qualities of early mergence and vigor of growth are lso apparent in its offspring, and vith the right male it may be possile to incorporate these good qualiies in canes of better type and ıaturity. When crossed with C. P. 8/12 it has produced a fair numer of good types, but most of the elections were eliminated by low ucrose.

Foreign Varieties

One hundred sixty foreign varieies were studied during the year.)f these 137 were recent accessions, ıostly from the collection made by

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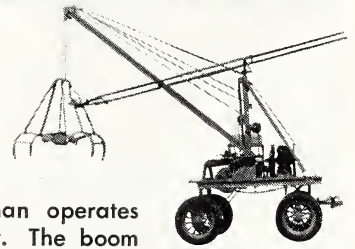

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Dr. Brandes in Formosa. Mosa inoculations were made on all these both in the field and in t greenhouse, the 112 that produc mature cane were inoculated wi red rot in the laboratory, 28 we analyzed for sucrose, and one, C 421, was replanted for further stu as a commercial prospect. Ninet three of the varieties became infec ed with mosaic, either from natur spread or artificial inoculation, a 85 were rated susceptible to red r

P.O.J. 3016, which was includ in this group, failed to make sati factory growth. However, this m have resulted partially from la spring planting of greenhous grown seed cane. Another plantir made this year from field-grov seed obtained from Canal Point, h established a satisfactory stand.

[1] Resigned February 1950.

[2] The authors are indebted to Lester G. Davidson making the laboratory chemical analyses; to Robert Tippett for assistance in conducting disease resiste tests, making hand refractometer readings, field notes tabulating data; and to the American Sugar Cane Lea for financial assistance.

[3] According to Mr. C. O. Grassl, C. P. 33/409 has been s to the breeding station in the Canal Zone, where it n flower.

THE USES OF SUGAR

(*From the Sugar Molecule of April*, 1950)

Strange and unsuspected uses f sugar come to light every day. A though it is true that more tha 90 per cent of our 40 million pou a day consumption is used excl sively as a food, the Foundation fc lows up all leads which might su gest an expanding non-food appl cation.

Among the more unusual us suggested from time to time by co respondents are the following:

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Mucilage for postage stamps-M. L. Moss, Wilmington, Del.

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Preparation for curling hair-Dr. W. C. Reid, Oakland, Calif.

Embalming fluid — Pittsburgh Fluid Co., Pittsburgh, Pa.

Antifreeze—Dr. G. Vischi, Spadra, Calif.

To strengthen concrete—Dr. R. H. Harrington, Schenectady, N. Y.

Stiffening for embroidery—Dr. A. Steiner, Lansing, Michigan.

Mounting medium for microscope slides—R. M. Cable, Lafayette, Ind.

Brightening agent for electroplating baths—R. A. Morgan, Gainesville, Fla.

Injections into apple trees to induce bearing — M. B. Cummings, Burlington, Vt.

Wound powder—Dr. L. Rivteller, New York, N. Y.

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Binder for ceramic materials—Carborundum Company, Niagara Falls, N. Y.

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THE SUGAR BULLETIN

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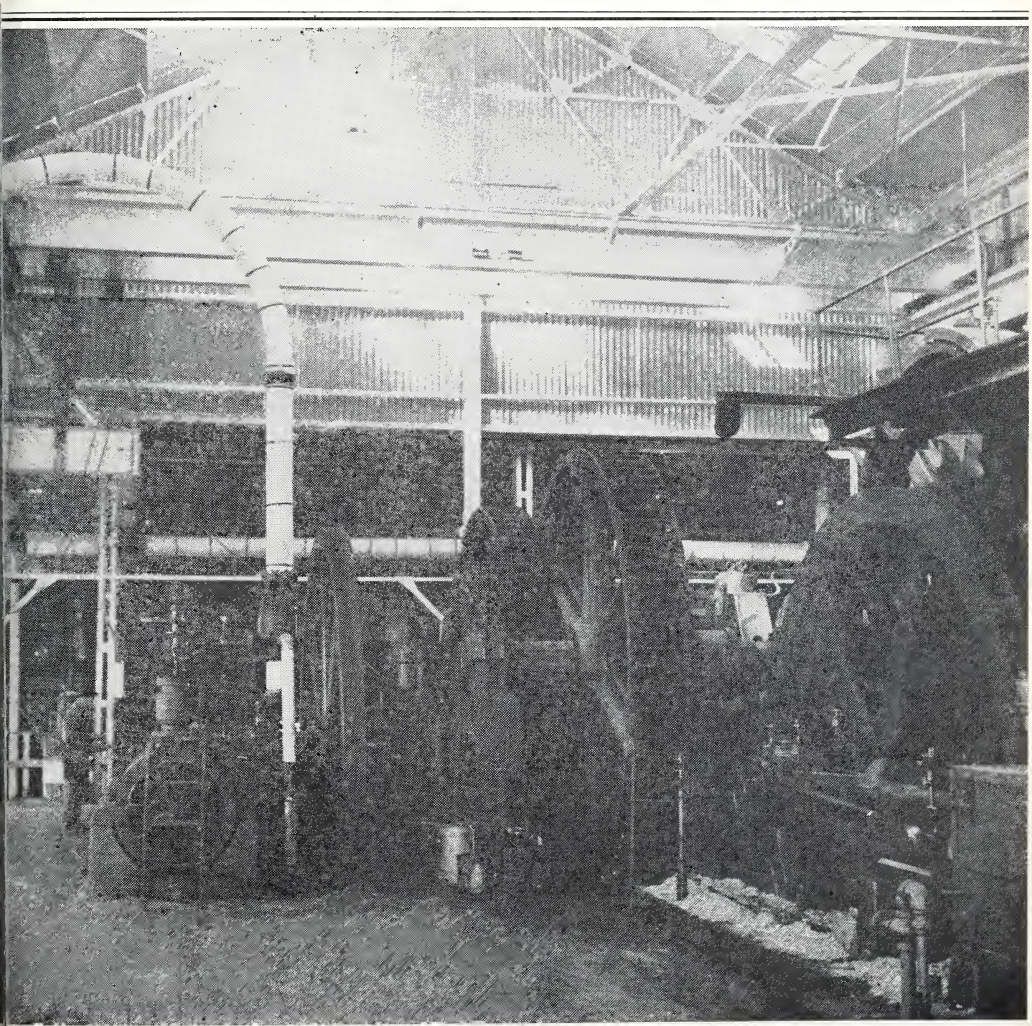
28 NEW ORLEANS, LA., JULY 1, 1950 No. 19



INTERIOR VIEW—COLUMBIA FACTORY

THE
SUGAR BULLETIN

414 Whitney Bldg., New Orleans 12

MARCEL J. VOORHIES, Editor

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RELEASE OF NEW SUGARCANE VARIETY C. P. 43-47

In accordance with established procedure, the three cooperating agencies which are working together in the development of improved sugarcane varieties for Louisiana, viz., the Division of Sugar Plant Investigations of the Bureau of Plant Industry, Soils, and Agricultural Engineering, United States Department of Agriculture, the Louisiana State Agricultural Experiment Station, and the American Sugar Cane League of the U. S. A. Inc., have jointly approved the release of C. P. 43/47 for commercial planting in the fall of 1950.

In comparative field tests during the past 3 years C. P. 43/47 has equaled C. P. 36/105 in production of cane and sugar per acre and in stubbling qualities; it has displayed important advantages over C. P. 36/105 in more satisfactorily meeting some of the requirements of mechanized field operations. Under drouth conditions during 1948 occasional severe stunting was observed in this variety; however, the growth deficiency was not any more serious or extensive than observed in C. P. 36/105 in similiar situations.

C. P. 43/47 has given best results on light and mixed soils of central and southern parishes of the Sugar Belt. *From results obtained so far it cannot be recommended for the Red River section or heavy soils elsewhere.*

The new variety is moderately resistant to red rot, moderately susceptible to root rot and has shown a low percentage of mosaic at Raceland. In rate of sucrose inversion after cutting it is intermediate between C. P. 34/120 and C. P. 36/105, a ranking which may be regarded as relatively satisfactory. Its resistance to borer-damage is rated as average. *It is in class with Co.* 281 *as regards fibre content and juice extraction (milling factor* 1.00). In limited clarification tests on laboratory scale C. P. 43/47 gave juice of very light color in contrast with that of C. P. 36/105 which is always very dark.

C. P. 43/47 excels in several qualities that are essential for satisfactory machine harvesting. It makes relatively erect growth and does not lodge readily. Its stalks are fairly uniform in length and do not tend to break under ordinary conditions of mechanized cutting and stacking.

June 15, 1950.

Approved and Signed:

E. W. Brandes, *Head Pathologist in Charge, Division Sugar Plant Investigation, U. S. Department of Agriculture.*

W. G. Taggart, *Director of Experiment Stations, State of Louisiana.*

J. J. Munson, *President American Sugar Cane League of the U. S. A., Inc.*

NOTICE!

The American Sugar Cane League has been directed by the U. S. Department of Agriculture and the Louisiana Experiment Station to undertake a fair and impartial distribution of the newly released variety of cane known as

C.P. 43-47

A number of plots of this cane are subject to this distribution. It has been grown with the understanding that those growing it shall be paid for it at the price of mill cane plus $2.00 per ton for cutting and loading it on the vehicle of the purchaser and the League is authorized by the U. S. Department of Agriculture and the Louisiana Experiment Station to charge a distribution fee of 85 cents a ton.

If you wish some of this cane please fill out and sign the application blank on the opposite page. NO OTHER FORM OF APPLICATION WILL BE ACCEPTED, AND IT MUST BE RECEIVED AT THE OFFICE OF THE AMERICAN SUGAR CANE LEAGUE 414 WHITNEY BUILDING, NEW ORLEANS 12, NOT LATER THAN THURSDAY, AUGUST 31, 1950.

In the absence at this time, of exact figures supplied by the Government on the amount of the benefit payment for 1950 the precise price of mill cane is not known. You are required to agree to pay the best approximation we can now make, $10.23 per ton or actual mill price plus benefit payments.

Deposit of $1.00 per ton must be made with application

(You will find application blank on the opposite page. USE IT.)
Remember—

THE LAST DAY ON WHICH APPLICATIONS WILL BE RECEIVED IS AUGUST 31, 1950.

The American Sugar Cane League
414 Whitney Bank Bldg.
New Orleans 12, La.

THE LAST DAY ON WHICH APPLICATIONS FOR SEED CANE C.P. 43-47 CAN BE ACCEPTED IS AUGUST 31, 1950

I understand that the cane will cost me a total of approximately $10.23 (ten dollars and twenty-three cents) a ton as follows:

Mill price per ton at $5.80 sugar	$ 5.97
Conditional payment at 80 cents	1.28
Value of molasses to grower	0.13
Cost of cutting and loading	2.00
This sum all goes to the grower	$ 9.38
Distribution fee to the American Sugar Cane League	.85
TOTAL	$10.23

THE LAST DAY ON WHICH APPLICATIONS FOR SEED CANE C.P. 43-47 CAN BE ACCEPTED IS AUGUST 31, 1950

Tear Off Application Below and Mail

APPLICATION FOR SEED CANE

Date .....

To The American Sugar Cane League of the U. S. A. Inc.
Gentlemen:

I hereby apply for ..... tons of C.P. 43-47 seed cane and enclose $..... which is a deposit of earnest money at the rate of $1.00 per ton, non-refundable (unless the cane is not tendered me). The remainder I will pay when the cane is ready to be delivered to me, and I am to be notified concerning this and supplied with the name and address of the grower from whom I am to procure the cane, which I will send for on delivery dates in September 1950. Should the cane fail to be tendered to me by that date all payments and deposits made by me are to be refunded in full on each ton not tendered.

I had ..... acres of sugarcane in 1949.

This application is made with the full understanding on my part that it may not be possible to tender to me as much cane as I apply for, owing to the limited supply.

Name .....

Address .....

DETERMINATION OF PROPORTIONATE SHARES

UNITED STATES DEPARTMENT OF AGRICULTURE

Production and Marketing Administration

TITLE 7—AGRICULTURE

Chapter VIII—Production and Marketing Administration (Sugar Branch), Department of Agriculture

Subchapter G—Determination of Proportionate Shares

[Sugar Determination 850.3]

Part 850—Domestic Beet, Mainland Cane, Hawaii, Virgin Islands Sugar Producing Areas

1950 Crop

Pursuant to the provisions of section 302 of the Sugar Act of 1948, the following determination is hereby issued:

§ 850.3 *Proportionate shares for farms in the domestic beet, Mainland cane, Hawaiian and Virgin Islands areas*—(a) *Farm proportionate shares.* The proportionate share for the 1950 crop for each farm shall be as follows:

(1) In the domestic beet sugar area, the number of acres planted thereon for the production of sugar beets to be marketed (or processed by the producer) for the extraction of sugar or liquid sugar during the 1950 crop season;

(2) In the Mainland cane sugar area, the number of acres planted thereon for the production of sugarcane to be marketed (or processed by the producer) for the extraction of sugar or liquid sugar during the 1950 crop season;

(3) In Hawaii, the amount of sugar, raw value, commercially recoverable from sugarcane grown thereon and marketed (or processed by the producer) for the extraction of sugar or liquid sugar during the calendar year 1950; and

(4) In the Virgin Islands, the amount of sugar, raw value, commercially recoverable from sugarcane grown thereon and marketed (or processed by the producer) fo the extraction of sugar or liqui sugar during the 1950 crop seaso

(b) *Share tenant, share cropp and adherent planter protectio* Notwithstanding the establishme of a proportionate share for ar farm under paragraph (a) of th section, eligibility for payment any producer of sugarcane shall subject to the following condition

(1) That the number of sha tenants, share croppers or adhere planters on any sugarcane far shall not be reduced below the nur ber on such farm during the pr vious crop year, unless such redu tion is approved by the respecti State Committee or Director of t Area Office of the Production ar Marketing Administration; and

(2) That such producer shall n have entered into any leasing cropping agreement for the purpo of diverting to himself or other pr ducer any payment to which sha tenants, share croppers or adhere planters would be entitled if the leasing or cropping agreement f the previous crop year were in e fect.

Statement of Bases and Considerations

Requirements of the Sugar A As a condition for payment, secti 301 (b) of the act requires co pliance with the proportionate sha established for the farm. Such pr portionate share shall be the farm share of the quantity of sugar bee or sugarcane required to be pro essed to enable the producing ar to meet its quota (and provide normal carryover inventory) es mated by the Secretary for the ca endar year during which the larg part of the sugar from such cr normally would be marketed. Se tion 302 (a) of the act provid that the amount of sugar with r spect to which payment may made shall be the amount of sug

(Continued on page 301)

DATE OF WAGE-PRICE HEARING SET

NITED STATES DEPARTMENT OF AGRICULTURE PRODUCTION AND MARKETING ADMINSTRATION

(Sugar Branch)

Notice of Hearing and Designation of Presiding Officers

Pursuant to the authority contained in subsections (c) (1) and (c) (2) of section 301 of the Sugar Act of 1948 (61 Stat. 929; U. S. C. Sup. 1131), notice is hereby given that a public hearing will be held at Thibodaux, Louisiana, in the Grand Theater, on July 14, 1950, at 9:30 a. m.

The purpose of such hearing is to receive evidence likely to be of assistance to the Secretary of Agriculture in determining (1), pursuant to the provisions of section 301 (c) (1) of said Act, fair and reasonable wage rates for persons employed in the harvesting of the 1950 crop of sugarcane and in the planting and cultivation of sugarcane during the calendar year 1951 and (2) pursuant to the provisions of section 301 (c) (2) of said Act, fair and reasonable prices for the 1950 crop of sugarcane to be paid, under either purchase or toll agreements, by processors who as producers apply for payments under said Act. In order to obtain the best possible information, all interested persons are requested to appear to express their views and present appropriate data in regard to the foregoing matters,

The hearing, after being called to order at the time and place mentioned herein, may be continued from day to day within the discretion of the presiding officers and may be adjourned to a later day or to a different place without notice other than the announcement thereof at the hearing by the presiding officers.

George A. Dice, Thomas H. Allen, and Ward S. Stevenson are hereby designated as presiding officers to conduct either jointly or severally the foregoing hearing.

Issued this 12th day of *June*, 1950.

/s/ FRANK K. WOOLLEY,
Acting Administrator.

FAIR PRICES" CONDITION FOR SUGAR BEETS ANNOUNCED

The production and Marketing dministration of the U. S. Departent of Agriculture on June 12th nnounced the minimum "fair price" ondition under which processor-roducers of 1950 crop sugar beets ill be eligible for Government payents under the Sugar Act of 1948.

The condition is that prices not ss than those provided for in the 950 crop purchase contract between processor-producer and a producer hall be used as a basis for settlement for sugar beets purchased from a producer and processed by the processor-producer.

Department officials stated that, "Following the policy adopted in the 1948 and 1949 crop price determination, no attempt has been made in the 1950 price determination to evaluate prices payable for sugar beets at net return levels materially above or below those expected to result from the current price of sugar."

A processor-producer is a producer who directly or indirectly is also a processor of sugar beets.

CHILTON SUCCEEDS EDGERTON

DR. C. W. EDGERTON

DR. ST. JOHN P. CHILTON

Dr. St. John P. Chilton, L. S. U. Professor and Plant Pathologist, has been named chairman of the University's department of botany, bacteriology, and plant pathology for the summer session and the 1950-51 term. The announcement of the appointment was made June 3 by Dr. Cecil G. Taylor, Dean of the College of Arts and Sciences. Dr. Chilton will be head also of the Experiment Station work in plant pathology. He succeeds Dr. C. W. Edgerton who was retired at age 70, after having served for twenty-six years as head of the department.

Dr. Edgerton has been on the University faculty since 1908. Often called "the dean of plant pathology in the South," Dr. Edgerton began his career with the Agricultural Experiment Station by plunging into research on plant diseases in Louisiana. He did a great deal of the pioneer research on diseases of sugarcane, particularly red rot, root rot, and mosaic. His many scientific publications are records of his achievements. In addition to his personal researches he has, through the years, directed graduate work in his department. More than 100 maste theses and over 20 dissertations f the doctor's degree have been di ected by Dr. Edgerton. Under h direction, the department's facul and staff has become one of t finest in the United States and t Biology library is recognized as t best in the South. Dr. Edgert wished to build up a Departme that would rival the best in t country, and he has suceeded.

It is into Dr. Edgerton's big sho that one of his star students, D Chilton, has stepped. Dr. Chilton o tained the B. S. and M. S. degre from L. S. U., majoring in D Edgerton's department. The Ph degree was earned at the Universi of Minnesota, where he again studi under a world renowned scientis Dr. E. C. Stakman. Dr. Chilt worked for two years with the U. D. A. at Pennsylvania State Colleg He joined the L. S. U. faculty 1940 and has made an enviab record in teaching and research. H outstanding research work has i cluded weed control studies, contr of rice diseases, and research in varieties and disease control of sug

SOME ASPECTS OF IONIC EXCHANGE

By J. Dedek

From Socker (Communications from the Swedish Sugar Corporation: Vol. 6, 1950, #2) February, from Abstracts of the Quarterly Bulletin of The American Society of Sugar Cane Technologists, Vol. 6, No. 2, April, 1950.

Ion exchange is a new tool which t least consciously has not been sed before. For this reason, we ind it very difficult to think cor-ectly in terms of ion exchange. 'here can be no doubt of the in-reasing importance of ion ex-hange. The sugar industry ab-tracts have reserved a special chap-er to this subject. We find it in-reasingly difficult to follow the umerous publications on this sub-ect.

The difficulties are due not only o the fact that ion exchangers urify products but the manner in hich this purification is accom-lished.

The ion exchange resins are ighly insoluble and this is one of heir most important characteristics. Vithout this characteristic the res-ns would soon be dissolved in the treams of the different solutions hich are passed continuously hrough the beds.

Until now insolubility of an elec-rolye meant that it was practically nert or non-reactive. (With the ossible exception of some surface ctivity). In any case it meant that both ions, that is, cation and anion forming it, were equally insoluble.

One kg of a commercial cation ex-changer resin in the H+ form is in reality equal to 5N solution of H+ and this represents the same amount of strong acid as one eighth of a liter of concentrated hydrochloric acid. This acidity is present, how-ever, in a completely insoluble solid material which, suspended in a pure sugar solution (or in distilled wa-ter) gives a pH of 4 or 5—but is still able to invert sucrose rapidly even at normal temperatures.

This hidden acidity is liberated and becomes apparent if it finds the opportunity of an ionic exchange, if some soluble salt is added. Its cation is exchanged against the H+ of the resin and the corresponding acid is thus formed. If it is a salt of strong acid (Na Cl) the pH of the solution drops to 1 or 2.

Such a cation exchange resin in the H+ form is thus in reality a highly concentrated, practically com-pletely disassociated, but still in-soluble acid.

It is not easy to appreciate fully such a system. In a solution of

(Continued on page 300)

---

ane. He is currently in charge of a ajor research program on sugar ane seedlings. This project is finan-ed in the main by a legislative ap-ropriation sponsored by the Amer-an Sugar Cane League.

Dr. Chilton has a big job ahead of im; a job with unlimited possibili-es. His labors have already been of remendous value to the sugar in-ustry of the State and they are eeply appreciated. The American ugar Cane League wishes to pledge him our continued support and est wishes. We believe that he is fully capable of carrying on where his famous predecessor left off.

To Dr. Edgerton, we say again, well done, and best wishes for con-tinued good health and happiness. With the heavy burden of adminis-tration having been transferred from his shoulders to a capable successor, he can now, we are sure, indulge in one of his favorite diversions of the past, that of writing scientific arti-cles. For a man who has published more than 100 papers and articles, that should be a pleasant task.

WORLD SUGAR PRODUCTION EXPECTED TO SET NEW RECORI

(*From OFAR*)

World production of beet and cane sugar for the 1949-50 season is now estimated at 37,999,000 short tons (raw value), about 2 percent more than the previous record large crop of 37,287,000 tons (revised) produced in 1948-49 and 10 percent more than the 5-year (1935-39) average of 34,569,000 tons. The current estimate is 4 percent larger than output for 1949-50 indicated last fall, as the crops in Puerto Rico, Cuba and a number of countries in Europe and South America are turning out somewhat larger than earlier estimates.

World beet sugar production in 1949-50 is estimated at 11,584,000 short tons compared with 11,124,000 tons in 1948-49 and the 5-year (1935-39) average of 11,845,000 tons. Major increases over 1948-49 output occurred in Canada, the United States, Austria, Belgium, Denmark, Hungary, Italy, the Netherlands, Poland, the U.S.S.R. and Turkey, but these were offset in part by sizeable decreases in Bulgaria, France, Germany, and Spain.

World cane sugar production t taled 26,415,000 short tons in 194 50 compared with 26,163,000 tons 1948-49 and the 5-year (1935-3 average of 22,724,000 tons. Th United States, Cuba and the Britis West Indies and Java show signif cant increases over last year's ou put but China and India show siz able decreases.

In North and Central Americ including the West Indies, curre estimates show generally that th crops are turning out better tha earlier expected. The 1949-50 ou put is now expected to total 11,85(000 short tons compared with 1 247,000 tons in 1948-49 and th 5-year (1935-39) average of 7,81 000 tons. The unusually high yie of sucrose per ton of cane in Cu and the decision not to restrict pr duction in Puerto Rico resulted most of the improvement in the ar estimate. Also some of the We Indies areas are producing a reco large crop this year. Canada a the United States had larger be sugar production than in 1948.

ADDITIONAL DEFICIT IN 1950 SUGAR QUOTA FOR PHILIPPINES PRORATED TO OTHER COUNTRIE

The Production and Marketing Administration of the United States Department of Agriculture announced on June 14, 1950, the proration of an additional quota deficit of 150,000 tons in prospective marketings of Philippine sugar in the continental United States in 1950. This additional amount of quota accordingly has been prorated to Cuba and other foreign countries which supplied raw sugar to the United States market in 1949. The adjusted quotas for the countries affected by th proration are in short tons, ra value: Philippines—532,000; Cuba 2,646,900; Dominican Republic 8,123; Haiti—1,123; Mexico—7,34 Peru—13,539.

These new quotas represent t following increases: Cuba—142,5(tons; Dominican Republic — 2,0 tons; Haiti — 279 tons; Mexico 1,829 tons; and Peru—3,370 to These additional quantities may entered only as raw sugar.

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IONIC EXCHANGE

(Continued from page 297)

hydrochloric acid, which we can consider as practically completely dissociated, we are accustomed to consider both kinds of ions (H+ and Cl—) as freely mobile—they conduct electric current and by electrolysis they can seemingly be separated very easily. This mobility must however, be either mutual or it ceases all together.

Due to the principle of electroneutrality an ion, H+, can move freely only in an atmosphere of the corresponding opposite charges of — say CL—ions, distributed more or less evenly through the totality of the liquid.

If it were possible to fix one CL— ion—so that we could take it out of the solution then a corresponding H+ ion would lose its free mobility and would remain fixed in the immediate vicinity of the fixed Cl ion. In a grain of cation resin we have a large polyvalent anion tha because of its size, has lost i solubility. All of the negati charges have their correspondi positive charge. They may be ever ually dissociated but immobilize The selectivity of ion exchange is another very important chara acteristic of this new tool. Th author points out the fact that i exchangers can be developed to s lect certain ions from solution Lime, in conjunction with exchan clarification of beet juices, has pro en very beneficial. Even in sma quantities it removes collodial no sugars. These impurities have n been removed by the exchange pr cess.

In discussing the possibilities ion exchange, the author sugges that exchangers could be develope to transform the metals to a bas salt and then remove this salt, thu overcoming the large drop in p and the inversion of sugar solutio it causes.

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ROPORTIONATE SHARES

(Continued from page 294)

w value, commercially recoverable om the sugar beets or sugarcane rown on a farm and marketed (or rocessed) for sugar or liquid sugar ot in excess of the proportionate are established for the farm. Sec- on 302 (b) provides that in de- rmining the proportionate share r a farm the Secretary may take to consideration the past produc- on on the farm of sugar beets or garcane marketed (or processed) r the extraction of sugar or liquid gar and the ability to produce ch sugar beets or sugarcane, and at the Secretary shall, insofar as acticable, protect the interests of w producers and small producers, d the interests of producers who e cash tenants, share tenants, or are croppers.

Beet sugar area. Sugar from each op in this area is normally mar- ted during two calendar years, ith the major portion of such mar- tings in the year following the ginning of the harvest. Thus, the rryover of sugar from any crop to the following calendar year ay be a relatively high proportion the crop and still not be regarded excessive when compared with e quota for the calendar year. he term "sugar" as used herein eans sugar, raw value, and all nounts are expressed in short ns.) The stocks of beet sugar on nuary 1, 1950, together with the timated 1949-crop sugar beets to processed in 1950 will result in effective inventory on January 1, 50, of about 1,260,000 tons. Such inventory is not deemed to be cessive. On the basis of the March Crop Production Report of the reau of Agricultural Economics adjusted for the estimated plant- gs of sugar beets in the Imperial alley, California, this fall, a 1950 op of 11,600,000 tons of sugar ets is indicated. With average gar content, such a crop would pro- ce approximately 1,800,000 tons

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of sugar. In view of the reasonab carryover at the beginning of th year and the basic quota of 1,80(000 tons for the beet sugar ar there is no necessity for limiting t 1950 crop.

Mainland cane sugar area. (the basis of preliminary data, t 1949 crop in this area amounted 506,000 tons and the effective i ventory on January 1, 1950, was a proximately 140,000 tons. Since t act fixes a basic quota of 500,0(tons for the area, a total of 36(000 tons of 1950 crop sugar may marketed prior to January 1, 195 A reliable estimate of total produ tion from the 1950 crop is not y available. However, it seems u likely that such crop will exceed t 1949 crop production of 506,000 to by a substantial amount. Even production should reach the previo record high of 581,000 tons, t carryover on January 1, 1951, wou be only 221,000 tons if the full quo is marketed in 1950. Such an i ventory would not be deemed to excessive, although if the invento should reach such a level, restricti proportionate share might be nece sary for the 1951 crop to avoid excessive carryover at the end that year.

Hawaii. The carryover for Haw on January 1, 1950, was 237,0 tons. This carryover is substantial in excess of the amount carried ov from year to year prior to the wa It was the result of the strike longshoremen at Hawaiian ports f approximately six months, whi prevented the shipment of sugar the Mainland. With a statuto quota of 1,052,000 tons and a 19 local consumption quota of 45,0

ons, Hawaii may market 1,097,000 ons of sugar in 1950. The 1950 rop is currently estimated by the ndustry at 980,000 tons. The indi- ated carryover on January 1, 1951, f approximately 120,000 tons is not eemed excessive.

Virgin Islands. Although the pro- uction of sugar in 1950 may be lightly above the statutory quota of ,000 tons for this area it is not kely that the resulting carryover ould be excessive.

Determination. In view of the oregoing, it is deemed appropriate o establish proportionate shares for ne 1950 crop for farms in these reas at the level of actual market- ngs of sugar beets or sugarcane as ne case may be.

The provisions of this determina- on relating to the protection of hare tenants, share croppers and dherent planters are the same as ose established for the 1949 crop. ince the marketing of sugar beets nd sugarcane is not limited under is determination, special protec- on for new producers, small pro- ucers and cash tenants is unneces- ary.

Accordingly, I hereby find and onclude that the foregoing deter- ination will effectuate the pur- oses of section 302 of the Sugar ct of 1948.

(Section 403, 61 Stat. 932; 7 U. S. Section 403, 61 Stat

. Sup., 1153. Interprets or applies ec. 302, 61 Stat. 930; 7 U. S. C. up., 1132)

Issued this 24th day of May 1950.

CHARLES F. BRANNAN,
Secretary of Agriculture.

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IN WASHINGTON WITH C. J. BOURG

The following discussion by Robert C. Hockett, Ph.D., of the Sugar Research Foundation, appeared in the Journal of the California State Dental Association, Constituent of the American Dental Association.

Constituent of the American Dental Association:

"Natural" and Refined Sugars Their Chemistry and Biochemistry

Robert C. Hockett, B.A., M.A., Ph.D.

Abstract

Sugar, which in the usual sense means sucrose, has been eaten since pre-historic times. Sugar cane originated in India, beet sugar in Napoleonic France. The refined sucrose from both sources is identical. Sugar is broken down by hydrolysis into a mixture of glucose (dextrose) and fructose (levulose). The mixture is called invert sugar. In photosynthesis, the plant forms sucrose directly as one of the first products, and all other plant materials are formed from it. This explains the wide distribution of sucrose in so many different plants. In the digestion of carbohydrates, humans begin to break down starches in the mouth, forming sugars, but many other animals do not begin this process until the stomach or intestinal tract is reached. Thus, in studies on caries, it is not always possible to carry the results on animals over to man. Sugars are the cheapest and most efficient sources of energy for animals, since they are most widespread in plants, and are the source materials of proteins and fats, which exist in smaller quantities. The consumption of total carbohydrates in the United States is lower than in several other countries, and has decreased in recent years. Sucrose from all sources is identical, and recent studies have shown that in the unrefined state it contains practically no vitamins or minerals. So far, no evidence has been found for the existence of any "protective" factor in naturally occurring sugars which may prevent caries. Most dried fruits contain about as much sugar as do confections, and sucrose from all sources is equally susceptible to fermentation to produce acids which may attack enamel.

Summary

Sucrose (common sugar) is the primary product of photosynthesis, being formed from carbon dioxide and water in all green plants. As such, sucrose is the basic raw material from which all other organic compounds found either in plants or animals are built. The sugar removed from beet or cane is identical with the sugar occurring in all other plants and found in high concentrations in many vegetables and fruits. The sugar mill or refining processes do not in any way alter sugar chemically. Hence, the sugar in the sugar bowl is exactly the same as it was in the plant.

Common sugar or sucrose is split (inverted) by certain enzymes or by acids in the presence of water to form a mixture of D-glucose (dextrose) and D-fructose (levulose)

(Continued on page 313)

BULK HANDLING OF RAW SUGAR BY MOTOR TRUCKS

Presented at the Houma Meeting of The American Society of Sugar Cane Technologists, Houma, Louisiana June 6, 1950.

By Charles J. Lemann, B. Lemann & Bro., Inc., Donaldsonville, La.; Forrest T. Nettles, Winch-Lift, Inc., Shreveport, La.

In accepting your very kind invitation to address the members of the American Society of Sugar Cane Technologists, I must disclaim any qualification as a truck transportation expert. What I shall have to say, therefore, comes not from an expert's knowledge about the industry, but rather from close observation of it from the standpoint of one associated with trucks.

More and more signs point towards the possibility that transportation in Louisiana is changing—is realigning and readjusting itself. And the improved highways and the great growth of motor truck transportation are the biggest factors behind these shaping forces.

I hardly need to recount the growth of highway transportation for you men. You are all familiar with it, in a general way. Yet, perhaps some few statistics are necessary to show how this newcomer to American transportation has come about. In a third of a century the number of trucks in the United States has grown from a quarter million to eight million. While the great majority of these 8,000,000 trucks are in local use or employed on farms and are not in highway transport for hire, a substantial number of them are engaged in over-the-highway transportation.

While it is difficult to obtain a precise estimate, it has been stated on good authority that trucks now carry about 60 per cent of the total tonnage moved in the nation's commerce. More than 25,000 towns and villages now depend solely upon motor trucks for the movement of goods. There are 25,000 fleets of commercial trucks in the country with more than eight trucks in th fleet, yet they total less than 4 pe cent of all trucks in use. Bette than 50 per cent of all trucks i use are owned by individuals wh have only one truck. Approximatel 87 per cent of all trucks are pri vately owned, leaving only 13 pe cent in operation for hire.

The trucking industry in all it phases employes directly more tha 5,000,000 men and women, which i about three times as many as ar employed in the railroad industry Illustrating the growth of truck used in inter-city hauling, the num ber of Class I truck lines—thos with gross revenue of $100,000 o more annually—has jumped in th last eleven years from 1,030 t 2,500.

The motor truck is a supplemen tary form of transport for all othe of the major forms of transporta tion. The railroads of the Unite States own 80,000 or more truck which they use to supplement th movement of freight by rail. Th air lines and water shipping line own other thousands of trucks.

Yes, this great efficient form o fast and serviceable transport ha come about in a little less than tw generations. Together with the pas senger car, it has brought a mor profound change over America tha any other single development o modern times. For example, it pay out around 11 billion dollars an nually.

The motor trucking industry ha grown so fast in the past thre decades that it has become the ma jor transport competitor of the rail roads. The very extent of tha growth, and the way it has com

(Continued on page 314)

WAGE RATES FOR FLORIDA CANE WORKERS ANNOUNCED

"Fair and reasonable" wage rates for sugarcane workers in Florida during the period July 1, 1950 through June 30, 1951, to be paid by producers who apply for Government payments under the Sugar Act of 1948, were announced on June 29th by the U. S. Department of Agriculture.

Basic time rates and other provisions will continue unchanged from those in effect for the period July 1, 1949 through June 30, 1950. Basic time rates are 45 cents per hour for adult males; 38 cents per hour for adult females and workers between 14 and 16 years of age; and 55 cents per hour for tractor drivers and operators of mechanical loading or harvesting equipment. In cases where workers are employed on a piecework basis, the individual earnings of all workers during each pay period must average not less than the basic time rates specified in this announcement.

In addition to the wage payments to time basis and piecework employees, producers are required to furnish without charge, a habitable house, garden plot, medical attention, and such perquisites as are customarily furnished by the producer. The wage determination announced today also includes wage claim procedure to be followed by a person who believes he has not been paid in accordance with the wage determination. While wage claim procedure has been in effect for a number of years, its inclusion in the determination will make the information more generally available to producers and workers.

The Sugar Act provides, among other conditions of payment to growers, that all persons employed on a farm in the production, cultivation, or harvesting of sugarcane be paid in full by growers at rates not less than those determined by the Secretary of Agriculture to be fair and reasonable after public hearing and investigation. A public hearing was held on May 6, 1950, at Clewiston, Florida.

BULLETIN ON EXTRA LABOR FOR GRINDING

The time is now here when our labor needs for grinding must be examined and plans made to secure this labor.

The Louisiana Employment Service can provide every employer with help in locating and recruiting the additional labor needed for grinding.

They are prepared to assist you as follows:

1. They will contact the labor you have used in the past; will interview the local gang-leaders and report to you the availability and the numbers of such labor.
   At the proper time the Employment Service will assist you in recruiting such labor.
2. If you secure native labor from other states such as Mississippi and Alabama, on your request they will have that state contact this labor and their leaders and report to you on its availability.
   They will secure a permit for you to recruit and move this labor out of the other state.
   Note: No labor may be moved out of another state without a permit from the Employment Service of that state. Several Louisiana employers were fined last year for attempting to move labor from Alabama without a permit.
3. If you cannot secure native labor from Louisiana or neighboring states and wish to apply for foreign labor, such as Jamaicans, you must make application at your nearest office of the Louisiana Employment Service on or about July 15.

(Continued on page 312)

RATE OF INVERSION OBSERVED WITH SUGARCANE HARVESTED IN THE FLOWERING STAGE

By Robert E. Coleman, Assistant Physiologist, Division of Sugar Plant Investigations, Bureau of Plant Industry, Soils, and Agricultural Engineering, Agricultural Research Administration, United States Department of Agriculture.[1]

Sugarcane flowered extensively in Louisiana during the latter part of the grinding season of 1949-50. This afforded an unusual opportunity to study the rate of deterioration in cane of different varieties when cut at an advanced stage of development. As far as is known, such studies had not been previously made on the varieties that flowered in Louisiana this year, although the effects of maturity on inversion of sucrose have been investigated[2] with cane cut at stages prior to actual flowering. Those studies showed that with the increases in maturity there was a tendency toward a reduction in rate of inversion.

Varieties and Sampling

The varieties used in this experiment were C. P. 36/13 which came from Mandalay Plantation, near Houma, Louisiana, and varieties C. P. 34/120, 44/101, 45/153, and 45/184, all of which were grown at the Houma Station. All of the cane used was plant cane. These are by no means all the varieties tha flowered this year but were the onl varieties of which there was suffi cent cane available to conduct th experiments. The cane was store in the shade for a 2-week period i accordance with the method devel oped by Lauritzen[2] to measure var ietal rate of inversion.

Fully flowered, hand-cut cane wa used throughout the experiment The storage samples were selecte by taking stalks at random from pile and placing one at each of number of positions correspondin to the number of samples to b selected. Fifteen samples of 2 stalks each were used in the cas of C. P. 36/13 and C. P. 34/120 Because of the limited supply o cane of the other varieties, smaller size samples were used but non had less than nine stalks, or weigh ed less than fifteen pounds. Witl variety C. P. 44/101, only enoug cane for five samples was available Five of the fifteen samples wer analyzed the day of cutting and th remaining ten stored in the shad

Table 1. Change in Brix, apparent sucrose, apparent purity, weight and juice extraction in harvested arrowe sugarcane of unreleased and commercial varieties stored in the shade during harvesting season 1949.

Variety of Plant Cane	Date of Analysis	Duration of Storage	Brix	Sucrose	Purity	Purity Change	Weight Loss	Juice Extraction
	1949-50	Days	°	%			%	%
	Dec. 9	0	18.67	15.69	84.0			57.6
C. P. 36/13	Dec. 15	6	18.96	15.80	83.3	.7	—5.1	57.0
	Dec. 23	14	19.08	15.31	80.2	3.8	—7.4	51.7
	Dec. 23	0	18.71	16.31	87.2			47.9
C. P. 34/120	Jan. 3	11	19.59	15.75	80.4	6.8	—6.6	46.6
	Jan. 10	18	20.20	15.71	77.7	9.5	—8.6	44.2
	Jan. 3	3	19.30	15.92	82.5			43.1
C. P. 44/101	Jan. 10	10	19.93	15.42	77.4	5.1	—6.6	46.8
	Dec. 23	0	18.75	15.65	83.5			47.9
C. P. 45/153	Jan. 3	11	19.95	13.98	70.1	13.4	—7.4	48.9
	Jan. 10	18	20.40	13.02	63.8	19.7	—8.9	45.1
	Dec. 23	0	18.58	16.12	86.8			42.0
C. P. 45/184	Jan. 3	11	19.70	15.44	78.4	8.4	—4.3	43.3
	Jan. 10	18	20.02	15.51	77.5	9.3	—7.2	40.7

[1] Acknowledgement is made to Mr. L. G. Davidson, Associate Chemist, Division of Sugar Plant Investigations, f making juice analyses.

[2] Lauritzen, J. I., Balch, R. T., and Fort, C. A. Inversion of sucrose and other physiological changes in harvested suga cane in Louisiana. U. S. Dept. Agr. Tech. Bul. 939, 65 pp. 1948.

THE RELATIVE KEEPING QUALITY OF CANE BURNED WITH A DITCHBANK BURNER

By Robert E. Coleman, Assistant Plant Physiologist, Division of Sugar Plant Investigations, Bureau of Plant Industry, Soils, and Agricultural Engineering, Agricultural Research Administration, United States Department of Agriculture.[2]

Flaming of sugarcane in the heap-ow to eliminate trash is being prac-iced on an increasing scale in ouisiana. Use is made of ditch-ank flaming devices (not "flame ultivators") to expedite the burn-ng operation instead of simply ig-iting the foliage. By employing his method, the trash may be sat-sfactorily burned in a relatively reen condition, thus greatly reduc-ng the lag between cutting and urning and incidentally avoiding ome of the loss in sugar due to in-ersion prior to burning.

In tests during 1949, comparable ots of sugarcane that had been etrashed by (1) flaming and (2) elf-burning were stored under iden-ical conditions to determine the ffect of each treatment on rate of eterioration. Similar comparisons ere made between flamed and and-stripped cane. In this report ne cane burned with the ditchbank urner will be termed "flamed cane" r lack of a better name.

The cane for all of these experi-ents was machine harvested. Sam-les for storage tests were taken om the two center heap-rows of a square, the burned cane coming from one heap-row and the unburned or flamed, whichever the experiment might involve, coming from the adjoining heap-row. The procedure for sampling and storage was the same as that which has been described by Lauritzen and Fort[3].

In three of the experiments the cane was stored in storage rooms, at both high and low humidities at three different temperatures. In four experiments the cane was stored in the field, and in the other two the cane was stored in open racks where it could be sprinkled with water, or left unsprinkled. The cane used in all of these experiments consisted of commercial varieties and came from plantations adjoining the experiment station.

Experimental Data

Samples of cane that had been in storage were removed at different intervals, those in the field storage every day, and those in the storage rooms about every three or four days, and analyzed for Brix, apparent sucrose, change in weight, and percent of juice extraction. The

(Continued on next page)

nd 45/184, deteriorated at lesser ates than in experiments earlier the season. C. P. 44/101 showed slightly greater and C. P. 45/153 substantially greater rate of in-ersion than in earlier tests. The eight losses during storage shown table 1, are about the same as ose of cane which has not arrowed hen stored for an equivalent per-d of time. Likewise the drop in rcentage of juice extraction was st about the same as it has been r normal cane, although the initial traction averaged about 12% lower an normal for the varieties tested. and five samples analyzed at the end of about one week and two weeks of storage.

Results

As will be seen from juice analyses given in table 1, initial levels of Brix, sucrose content, and purity were exceptionally high. The rate of inversion as based on drop in purity observed in the average of the five varieties tested was slightly but not significantly higher than the average value obtained with the same varieties cut earlier in the season prior to blooming. Three of the varieties, C. P. 36/13, 34/120

comparisons of the rate of deterioration or inversion are based on the drop in apparent purity of the samples at the different times of analysis.

In the two experiments in storage rooms (high and low humidity at 55°, 65° and75° F.) for ten and thirteen days, respectively, flamed (burned) cane was compared to unburned cane. In these two experiments the behavior of flamed cane was more or less what might have been expected from burned cane, i. e., under conditions of low humidity it kept as well as unburned cane, but in high humidity storage, its rate of deterioration was greater than that of unburned cane. After thirteen days of storage in the warm (75° F.), high humidity rooms no difficulty was experienced in juice clarification, which has not been true in most of the previous experiments with burned cane. The increase in juice acidity was typical of that ordinarily observed with burned cane.

In another experiment in the storage rooms, flamed cane was compared directly with burned cane. This experiment showed that after twelve days there was very little difference between the rate of deterioration in the flamed cane and in the burned cane. In five of the six rooms the flamed cane kept slightly better than the burned cane, and at 75° F., low humidity, the burned cane deteriorated much more rapidly than the flamed cane.

Three field storage experiments were conducted in which flamed (burned) cane was compared with unburned cane. One of these experiments showed that after eight days of storage the flamed cane showed a much greater rate of inversion than did the unburned cane. However, in two other similar experiments of seven and eleven days of storage there was no significant difference in rate of inversion between flamed and unburned cane.

In a field storage experiment extending over nine days, flamed cane deteriorated at approximatel the same rate as did burned cane.

Another experiment directly con pared flamed cane with burned car stored in the open, half of whic was sprinkled with water period cally and half of which was kep dry. After twelve days of this typ of storage, as might be expecte the unsprinkled (dry) cane showe the greater amount of inversion a observed with burned cane.

In all of these storage exper ments there were no significar differences in loss of weight c juice extraction between the burne unburned or flamed cane when store at the same relative moisture level Differences in juice acidity wer observed only in those cases speci ically pointed out above.

Summary

In experiments during 1949, sug arcane that had been detrashed b flaming with a ditchback burne deteriorated at approximately th same rate as did sugarcane fire by merely igniting the trash; showed the usual disadvantages c burned cane in comparison wit hand-stripped cane, especially afte storage under conditions of hig humidity. However, the lapse i time between cutting and burnin can be greatly shortened by use c the flame method, and losses fro inversion prior to burning accor ingly reduced.

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[1] Report of a study made under the Research a Marketing Act of 1946.

[2] Acknowledgement is made to Mr. L. G. Davids Associate Chemist, Division of Sugar Plant Investi tions, for making juice analyses.

[3] Lauritzen, J. I., Balch, R. T., and Fort, C. A. Inv sion of sucrose and other physiological changes in harvest sugarcane in Louisiana. U. S. Dept. Agr. Tech. Bul. 9 65 pp. 1948.

LABOR

(Continued from page 309)

Your application must be mad this early because of the time r quired to process such applicatio in Louisiana and Washington.

You should also notify the Leagu that you are making application f foreign labor.

American Sugar Cane Leagu Labor Committee.

Johnson Grass Building Resistance To 2, 4-D

Suspicious of surviving Johnson grass plants in sugarcane fields treated with 2, 4-D, agronomists of the U. S. Department of Agriculture found that the next generation grown from the seeds of these surviving plants was twice as resistant to the 2, 4-D as those of the previous generation. Johnson grass, introduced into the South as a forage crop more than a century ago, has spread widely as a weed in cane and cotton fields.

Research men in the Division of Sugar Plant Investigations found that 2, 4-D applied on the soil surface at the low rate of 2 pounds to the acre reduced the emergence of Johnson grass seedlings (and other weeds, too, including tie vines and alligator weed) by 85 to 95 percent and had no bad effect on the sugarcane sprouting or growth. Because scientists are always curious concerning their own findings, they saved the seed of surviving Johnson grass plants and grew it to see how the plants from this seed would react to the 2, 4-D treatment.

As a result of their findings, it now appears that chemical weed control is another field in which agricultural science must always look for something new, just as it has had to do in meeting the attacks of fungi and bacteria, and as the entomologists have had to do in the fight on house fly strains showing resistance to DDT.

Freeing the rich, alluvial sugarcane fields from alligator weed and tie vines through airplane spraying with 2, 4-D is one of the recent forward steps cited by the Department of Agriculture scientists to show progress in handling this crop. Recently Johnson grass also has been getting attention with the new killer chemicals, including 2, 4-D.

Acid Aids Beet Breeders

The hard coats of the seeds of some of the near but odd relatives of the sugar beet (a few that even grow as vines) has led U. S. Department of Agriculture geneticists to use strong sulfuric acid to weaken the shell and bring out a higher percentage of seedlings. Reporting on the application of this caustic scarifier to these particular seeds, Dewey Stewart of the Bureau of Plant Industry, Soils and Agricultural Engineering, says that certain species useful in breeding research seldom germinate as much as 20 percent. Even these seedlings are likely to be weakly and sometimes spread over a period of weeks. But when concentrated sulfuric acid is used to cut away the hard tissue, the sprouts break out immediately, even in freshly harvested seed.

The procedure makes some of the non-cultivated members of the beet genus easier to hybridize with the more sugary species so that desirable characteristics from the wild sorts can be utilized. Sugar beets and their cultivated relatives—such as mangels and table beets—ordinarily germinate very well, but Stewart says the horny hulls of some of the wild ones have kept germination so low as to discourage extensive tests or even to make such tests impractical under field conditions.

Agronomists have long scarified hard seeds with sulfuric acid, particularly certain legumes and more recently some grass seeds. This application, however, to obscure wild beet plants to help the scientist put to work his meagre store of seeds with added genes is new. It is another example of successful effort to make research more efficient—to bring good results quicker, to make them more profitable.

IN WASHINGTON

(Continued from page 307)

ordinarily known as "invert sugar". Most animals, including man, invert

sucrose readily and efficiently in the intestinal tract. The bee converts sucrose from blossoms into invert sugar, which so produced and flavored by plant essences is called honey. The main dietary carbohydrates besides sucrose, D-glucose and D-levulose are starch and milk sugar. Starch is converted by human saliva into glucose but is not affected by the saliva of many animals such as the dog and the rat, which are often used in research.

The carbohydrates are far more economically produced than fats, proteins or food products of animal origin. The beet and the cane are by far the most efficient food producing plants now cultivated on any scale. The rapid growth of the world's population will make necessary a continuing and even increasing dependence upon carbohydrates (including sugar) as food. Hence, we must concentrate more effort on learning how to use them as staples without injury to the teeth. The inhabitants of the United States consume a smaller proportion of total carbohydrates than most other nationalities.

Many dried fruits have a very high sugar content. This sugar is generally a mixture of sucrose, D-glucose and D-fructose. Such dried fruits, as well as honey, maple sugar, maple syrup, raw sugar and molasses, form acids just as rapidly in the presence of saliva bacteria as refined sugar or dextrose. Many processed food products contain lower concentrations of sugar than do such dried fruit as apricots, dates, prunes, raisins and figs. Hence, if speed of acid formation determines rate of tooth decay, some of the prevalent dietary recommendations for caries control will have to be altered radically in order to be consistent. Citrus juices and several popular beverages are comparable both in sugar content and in acidity and therefore would be expected to act similarly on the teeth.

Whole dried cane juice contains only minor quantities of the know vitamins and nutrient mineral Experiments are under way to d termine whether such integral sug contains any hitherto unknown vi amin or trace element that can he produce caries-immune teeth whe fed to mothers or young befo tooth eruption.

BULK HANDLING

(Continued from page 308)

about, has resulted in many of th big, complicated and perplexin transportation problems that w have before us now for solutio over the next decade or so.

And, so, from these impressiv facts we learn that the motor truc with its tremendous and efficie capacity to move raw materials the factories, and finished produc to the consumers, is now an esta lished cog in the machinery of ou American economy.

Present Handling of Raw Sug By Various Mills

Many millers are so engrosse with the production of raw sug with its many problems and ex penses that some have not yet bee attracted to the economies and fa cilities with which the bulk han ling of the raw sugar may be e fected. Also, the initial expend ture involved in the alteration physical outlay is sometimes di couraging. Many are content, on they see the accomplishment of ra sugar flowing down the conveyor Our analysis begins at this poi and is designed to show the savin in both manpower and money as result of our study.

With the shortage of labor ex perienced as a result of the last wa along with the increased freigh rate, and, now with the 75¢ min mum labor for the coming seaso much attention has been focused u on this phase of operation in th sugar industry.

You will find two charts whic we have prepared, one giving sta tistical information on represent

	ST. JAMES SUGAR COOPERATIVE				RIVER MILL		BAYOU MILL		TECHE MILL	
	1948	1949		1950 Proposed	Present	Proposed	Present	Proposed	Present	Proposed
		20,485,136								
ANNUAL PROD. RAW SUGAR	15,574,744 lbs.	Rail 13,913,040 lb.	Truck 6,572,096 lbs.	16,000,000 lbs.	13,096,411 lbs.	13,000,000 lbs.	23,800,000 lbs.	18,000,000 lbs.	18,595,145 lbs.	18,000,000 lbs.
NO. EMPLOYEES IN HANDLING PRODUCTION	4	4	2	2	7	2	12	3	2	2
AMT. PAYROLL IN HANDLING	$2,450.00	$1,528.00	$ 721.80	$1,536.00	$3,034.00	$1,536.00	$5,765.76	$2,400.00	$1,440.00	$1,440.00
INVESTMENT HANDLING STORAGE EQPT.	775.00	775.00	1,411.00	6,000.00	10,000.00	7,000.00	5,125.00	6,000.00	1,000.00	6,000.00
DEPRECIATION, STORAGE, & LOADING EQPT.	77.50	77.50	141.10	300.00	1,040.00	700.00	512.50	300.00	100.00	300.00
COST OF SHIPPING (frt.)	.1854 CWT $29,032.00	.1854 CWT $25,742.00	.1112 CWT $ 7,309.60	.0750 CWT $12,000.00	.1957 CWT $25,899.00	.1160 CWT $15,080.00	.1888 CWT $44,788.00	.0615 CWT $11,070.00	.2060 CWT $38,306.00	.1675 CWT $30,150.00
COST PER CWT (Handlng & ship)	.2026 CWT $31,559.50	.1965 CWT $27,347.70	.1244 CWT $ 8,172.40	.0865 CWT $13,836.00	.2288 CWT $29,973.00	.1332 CWT $17,316.00	.2145 CWT $51,066.26	.0765 CWT $13,770.00	.2142 CWT $39,846.00	.1772 CWT $31,890.00
PROPOSED SAVING IN TRUCKS				$17,620.00		$12,428.00		$24,840.00		$ 6,666.00

* Ferry cost left off River Mill and Teche Mill. These can use bridge instead.
** River Mill cost based on 20 ton trailer. Bayou Mill cost based on 15 ton trailer. Teche Mill cost based on 20 tons.

PROPOSED OPERATING COST DATA FOR TRUCKS

50 mile haul, 100 mile round trip. 1 trip every 3 hrs. or 5 trips per day 500 miles per day.

10 Ton Payload

15 yd. CLEMENT trailer. Mtl. 1350 lb. per yd. payload 20,250 lbs. or 101,250 lbs. per day or 50 tons per day.

Cost Per Day—24 Day Month

Trailer Depreciation: 15 yd. CLEMENT complete—$5,000.00 5 yrs. depr. or 15 mos. @ $333.33 mo. or $13.88 per day	$13.88
Truck Depreciation: Initial cost $5,000.00 2 yrs. depr. or 6 mos. @ $666.66 mos. or $27.77 per day.	27.77
License	1.20
Insurance	.50
Wages	24.00
Gasoline—5 mi. gal. or 100 gal. @ .30c gal.	30.00
Oil	1.50
Wash and Grease	.50
Maintenance	10.00
Ferry @ $2.50 per trip	12.50
COST PER DAY	$121.85
COST PER YD. HAULED (75 yds.)	$ 1.62
COST PER TON HAULED (50 tons)	2.44
COST PER MILE	.24
COST PER TON-MILE	.048
COST PER CWT HAULED	.12

15 Ton Payload

23 yd. CLEMENT trailer. Mtl. 1350 lb. per yd. payload 31,050 lbs. or 155,250 lbs. per day or 77 tons per day.

Cost Per Day—24 Day Month

Trailer Depreciation: 23 yd. CLEMENT complete—$5,600.00 5 yrs. depr. or 15 mos. @ $373.33 mo. or $15.56 per day	$15.56
Truck Depreciation: Initial cost $5,600.00 2 yrs. depr. on $4,600.00—est. $1,000.00 trade-in or 6 mos. @ $766.66 mo. or $31.94 per day.	31.94
License	1.20
Insurance	.50
Wages	24.00
Gasoline—4 mil. gal. or 125 gal. @ 30c gal.	37.50
Oil	1.50
Wash and Grease	.50
Maintenance	10.00
Ferry @ $2.50 per trip	12.50
COST PER DAY	$135.20
COST PER YD. HAULED (115 yd.)	$ 1.18
COST PER TON HAULED (77 tons)	1.76
COST PER MILE	.27
COST PER TON-MILE	.035
COST PER CWT HAULED	.088

20 Ton Payload

30 yd. CLEMENT trailer. Mtl. 1350 lb. per yd. payload 40,500 lbs. or 202,500 lbs. per day or 101 tons per day.

Cost Per Day—24 Day Month

Trailer Depreciation: 30 yd. tandem CLEMENT complete—$7,500.00 mo. or $20.83 per day	$20.83
Truck Depreciation: Initial cost $6,000.00 2 yrs. depr on $5,000.00—est. $1,000.00 trade-in, or 6 mos. @ $833.33 mo. or $34.72 per day.	34.72
License	1.20
Insurance	.50
Wages	24.00
Gasoline—4 mi. gal. or 125 gal. @ 30c gal.	37.50
Oil	1.50
Wash and Grease	.50
Maintenance	10.00
Ferry @ $2.50 per trip	12.50
COST PER DAY	$143.25
COST PER YD. HAULED (150 yd.)	$ .96
COST PER TON HAULED (101 tons)	1.43
COST PER MILE	.286
COST PER TON-MILE	.028
COST PER CWT HAULED	.071

THESE FIGURES ARE AN ABSOLUTE MAXIMUM. PRACTICALLY EVERY ITEM CAN BE AND SHOULD BE REDUCED TO ALLOW AN EVEN GREATER SAVING

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tive mills in their handling met ods and costs experience. The ot er is an analysis of truck operatio prepared from fleet studies. S James Sugar Cooperative is list with its '48, '49 and proposed ope ation for '50. You will note th the other mills selected are situat in three different areas. We ha done this in order to reach all se ments of the sugar cane belt.

Let's review the previous oper tion of St. James Sugar Cooperati along with the present operation the three other mills which a contemplating the trucking of ra sugar in bulk.

In order that all calculations m be on a similar basis, the handli process is considered from the tin the sugar enters the conveyor on i way to either the box car, the ba ger, or into storage. The produ tion, payroll, depreciation, and ot er costs are taken from the actu records and are not estimated. T river and bayou mills show a hi payroll because their sugar has be sacked. Depreciation on fork truc is on a five year basis, while ho pers and other permanent equi ment is on a 25 year rate. The cos of shipping are actual freight rat while the cost per CWT is the fin figure of sugar delivered to the r finery.

Mr. Forrest Nettles of Winc Lift, Inc. has made an exhausti study of trucking operatio throughout the country, and is pr pared to give proposed figures the usage of specialized equipme for the economical movement of s gar. His broad experience, alo with his intense interest in the d signing of truck-trailer units to sa isfy this localized situation mak him especially qualified to proje this operation into the future. It with pleasure that I present M Nettles.

Analysis of St. James Operatio After Trucking

Early in 1949 Mr. F. A. Grau

ard, Manager of St. James Sugar ooperative began to gather data oncerning various hauling units, ith the idea in mind of trucking is raw sugar to Colonial Sugars, nc. He was assured of the re- ner's cooperation by Dr. George P. leade, Manager of the Grammercy lant. They were convinced that ucking would be a profitable ven- ure, both from the mill's and the efinery's standpoint. So the de- sion was made and two trucks and ailer units were purchased. Haul- g of raw sugar was begun ap- roximately two weeks after grind- g had started. The operation was uch more simple than had been nticipated. No investment was ade in expensive storage or hand- ng facilities. The trucks were aded by a scroll out of the same n used to load rail cars. The trip Gramercy was an easy one, with e ferry at Lutcher used in cross- g the Mississippi. Upon arriving the refinery, the unit was weigh- ed and the sugar dumped directly on the floor of the warehouse. The only limitation last year was in the ferry facilities. Total payload al- lowed was only an average of seven tons per trip, and the ferry only operated during daylight hours. Therefore hauling at St. James was very limited last season for three reasons—(1) trucks were purchased after grinding started, (2) the pay- load was limited, and (3) the "haul- ing day" was only approximately twelve hours long. The complete story of the St. James operation with more detail can be found in the January 1950 issue of The Su- gar Journal. In spite of the above mentioned adverse conditions, we see from the attached chart that St. James realized a considerable saving last year. The fact that only a portion of their production was trucked in 1949 gives us the oppor- tunity of comparing actual costs of rail and truck transportation. We see that a total of 13,913,140 pounds

ATLACIDE

Kills JOHNSON GRASS

Atlacide, the *safer* chlorate weed killer, kills grasses and weeds by destroying roots. Use it for eradicating Johnson grass in ditches, along headlands, railroad tracks and in other non-crop areas.

Atlacide is a tried and *proven* weed killer with over 18 years of successful use. Comes in powder form . . . easy to mix and apply as spray.

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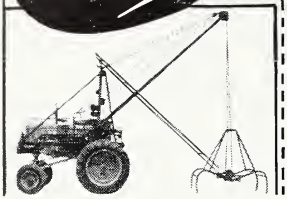

This new loader's boom has a hydraulic swing, with adjustable working radius. It loads 350 to 450 tons per 9-hour day, 800 pounds per lift. Operated by two men, one driver and one operator, its power is direct from front end of Allis-Chalmers (UC), Minneapolis-Moline (UTC), Case (DCS) and International Harvester (MV or MDV).

●

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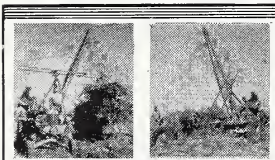

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of sugar was shipped by rail at th total cost (including handling ar shipping) of $27,347.70 or .196 per CWT. Compare that to the tot cost (including handling and shi ping) of sugar shipped in trucks- 6,572,196 pounds at a cost $8172.40 or .1244¢ per CWT. Ha they shipped their entire productio of 20,485,136 pounds by truck the would have saved .0722¢ per CW and have realized a total saving $14,790.00. Since less than on third the total production wa trucked, the saving naturally wa less than that figure. However, th saving was sufficient in the o season to amortize one-half of th investment made. Plans are bein made now to ship the entire 19 production by truck at a total co of .0865¢ per CWT. It is easy see that this will be a saving 1101¢ over the 1949 rail cost .1966¢ per CWT. This saving mult plied by the estimated 1950 produ tion of 16,000,000 pounds give S James promise of saving $17,620.(this year. Mr. F. A. Graugnard J is very enthusiastic about the pro pect of such a saving, and is qui willing to share the facts of his o eration with any other shipper i terested in knowing them.

Analysis of Proposed Operation Costs Through Usage of Trucks

You will see on the attached cha that three representative mills ha been chosen as examples of norm operations. The "River Mill" a the "Bayou Mill" are at present sac ing their sugar. Therefore, the pr posed saving to them is great than to the "Teche Mill" which already shipping in bulk. Howeve a quick glance at the chart will sho that the saving is considerable- even to that mill. The figures show in the "Present" column a *ACTUAL*, and were taken from th books of the representative mil The figures in the "Proposed" c umn are based on the second cha which is attached. This chart sho

roposed costs on the operation of rucks. It is apparent that these stimates are *maximum*, and that he cost of an actual operation would e less. Naturally, the lower the ost, the greater the saving.

This second chart is broken into hree parts representing three trail- rs of varying capacities. From that hart any miller can estimate the ost of trucking his sugar by sim- ly multiplying the cost per Ton- ile shown by the distance *to* his efinery. By comparing that figure his freight rate per ton he can uickly estimate his saving, and an decide which capacity unit ould be most practical in his op- ration. It should be pointed out ere that the saving in freight is ot the only one involved. With the ew $.75 hourly minimum wage it imperative that the miller elimi- ate as possible.

At present there are two refin- ies in the state which are possible utlets for bulk sugar in trucks. olonial Sugars Company in Gram- ercy received sugar in that man- r last year and they are anxious receive more this season. Dr. eorge P. Meade was quoted in the anuary 1950 issue of The Sugar ournal as expressing the view that uipment and receipts in dump units simply, efficient, and highly sat- factory. The American Sugar Re- nery in New Orleans has indicated strong interest in receiving bulk gar in trucks, and we quote Mr. . D. Scott, Refinery Manager as llows, "We are very much inter- ted, and can receive 1,500,000 per y in trucks this season".

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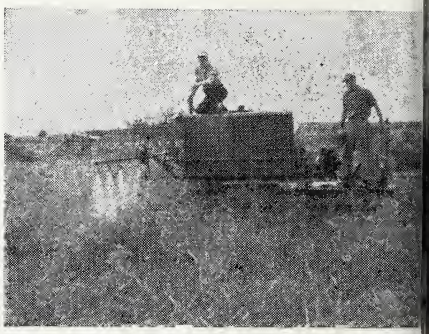

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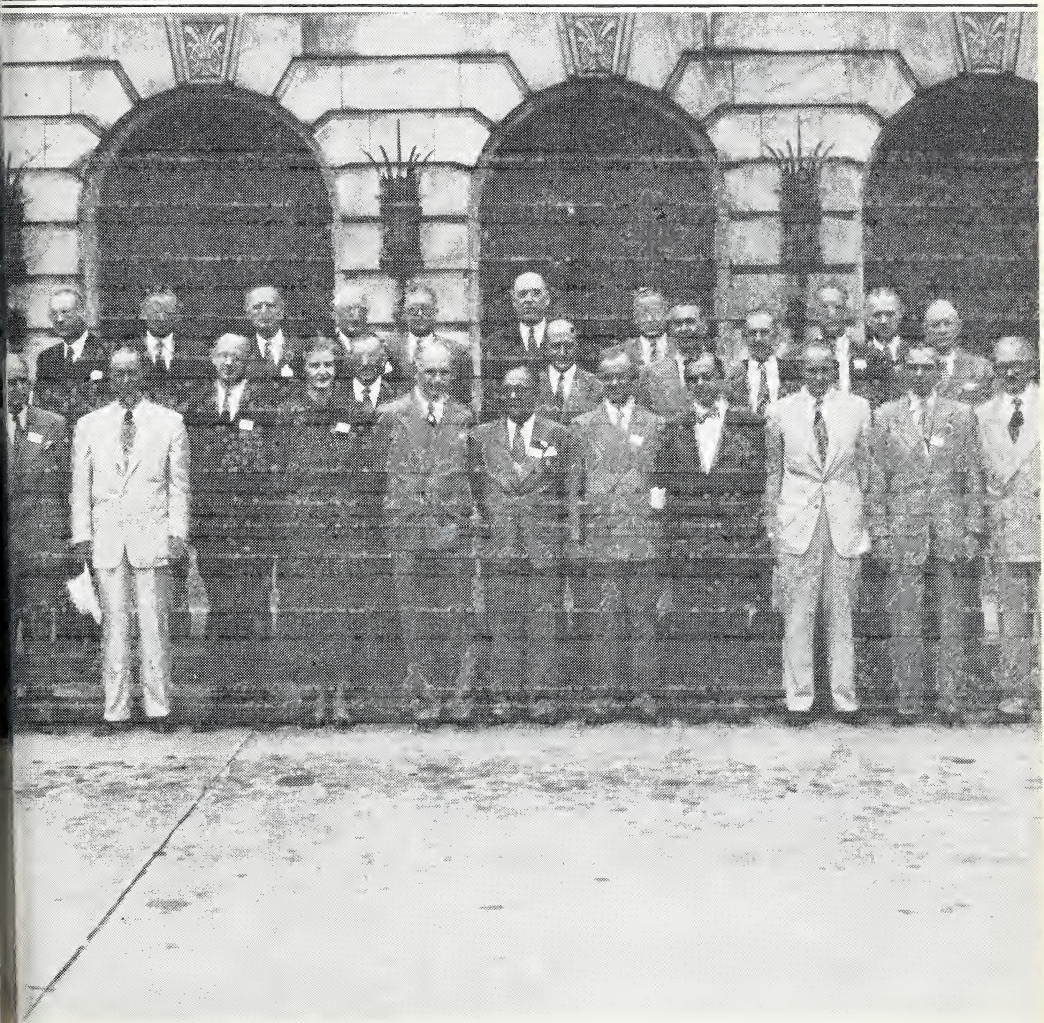

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Messrs. L. J. Munson and Murphy J. Foster left to right on front row.

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IN WASHINGTON WITH C. J. BOURG

There was a hearing held before the Committee on Foreign Affairs in the House of Representatives regarding the membership and participation by the United States in the International Trade Organization.

This hearing was before the whole Committee on Foreign Affairs and contains some very definite references to the Sugar Act of 1948. The Honorable Willard Thorp, Assistant Secretary of State of the United States, made certain comments with regard to Article 20, including direct references to the Sugar Act, which are as follows:

> "One of the most important exceptions to the general rule against quotas, from the point of view of the United States, is that permitting the use of import quotas on agricultural products where they are necessary to the enforcement of domestic marketing or production restriction programs. This will permit the continuance, for example, of import quotas on sugar under the provisions of the Sugar Act of 1948. Other important exceptions are found in Article 45 and in Article 99. The latter articles clearly authorizes United States export restrictions which are considered necessary to the national security in time of international emergency."

Immediately following this discussion, the following questions and answers appear in the record:

"Thursday, April 20, 1950

"Chairman Kee. Would our Government's assent to the Haba Charter require a repeal or a mod fication of the Sugar Act of 19 which now imposes quota restri tions on imports of refined and quid sugar?

"Mr. Thorp. Mr. Chairman, spoke concerning the relationsh between domestic restriction pr grams and import quotas. In o opinion, the Sugar Act would n contravene the charter with respe to dealing with problems such that of sugar.

"Chairman Kee. Does your opi ion apply to the quotas on refin sugar and liquid sugar as well on t general quota on sugar?

Mr. Thorp. Yes, we wou feel the Sugar Act would be treat as an integrated whole.

"Chairman Kee. That would the position of the State Depar ment if the question should ever raised in the ITO?

"Mr. Thorp. Yes, sir. We ha studied this problem very careful and we are convinced that the pos tion which I have stated is the co rect one.

"Chairman Kee. Are there a reservations to the text of the cha ter which we have before us, a private agreements or understan ings with any country?

"Mr. Thorp. No, sir, there are side agreements or private agre ments or reservations or secret pr tocols, or anything in that catego relating to the charter.

(Continued on page 334)

COMPOSITION AND CLARIFICATION CHARACTERISTICS OF JUICE FROM SOME OF THE NEWER VARIETIES OF C. P. CANES[2]

By R. T. Balch and E. K. Ventre, U. S. D. A. Sugarcane Field Station[2] Houma, Louisiana.

Clarification difficulties experienced by the Louisiana sugar factories during the past few seasons have made the operators very clarification conscious. A desire for information on the clarification characteristics of the more recently released varieties of cane has often been expressed, for it has been thought that some of these might be refractory during clarification or show other undesirable properties. It was possible to obtain some information on this subject during the last harvesting season, as a by-product of other studies on clarification; and, although the findings are not extensive, they are being presented at this time in the hope that they will be of some value to the industry.

Experimental

The varieties of cane examined were C. P. 34/120, 36/105, 43/47, 44/101, 44/155, 46/51 and 46/193, grown in the Houma and Raceland areas. The cane was hand cut and cleaned perfectly and represented ideally cleaned material. It was multiple milled with added maceration water under a standardized procedure (1)*. The juices from the successive pressings were combined according to their respective weight to form the mixed juices that were examined. These juices were strained through 200 mesh screen prior to analysis and clarification.

The clarification test consisted of heating 1-liter aliquots of each juice sample at room temperature to pHs of 6.8, 7.4, 7.8 and 8.2 (+0.1), heating these samples to the boiling point, and settling the hot juices in graduated cylinders each surrounded by a large glass cylinder for insulation purposes. The volume of muds was noted after 3, 10, 30 and 60 minutes of settling to measure the rate of settling.

The raw juices were analyzed for Brix, polarization and apparent purity by conventional methods, for ash and by direct incineration, for phosphorus pentoxide by a colorimetric method (molybdenum blue) and, in a few samples, for total nitrogen by a micro method (Kjeldahl-Nessler). All clarified juices were examined for their pH value and filterability (through paper). The muds from those samples clarified at either 7.4 or 7.8 pH were collected on tared filter paper, washed practically free of juice, dried and weighed. Juices clarified at 8.2 pH, which represented, it was assumed, a maximum elimination of impurities, were analyzed for their true sucrose and reducing sugar content by standard chemical methods. The non-sugar content was obtained by difference between the total sugars and Brix solids. These determinations were made for the purpose of learning whether or not the juices possessed a typical composition. Apparent purity determinations were not made on the various aliquots of juice after clarification as the differences resulting from the use of varying amounts of lime were found to lie within the experimental errors of the method and the data would serve no particularly useful purpose. All the clarified juices were analyzed for their phosphorus pentoxide content and a few for total nitrogen from which information it was possible to calculate the elimination of these constituents which is essential in clarifying cane juices.

Results and Discussion

The results of the chemical analysis of raw and clarified juices are summarized in Table 1. The ash content of these juices is of the same order as that found by Fort

and McKaig(2) for juices from many of those cane varieties which preceded the present set. The phosphorus pentoxide content appeared to be slightly lower than these and the total nitrogen, slightly higher but these differences probably are not significant in view of the relatively small numbers of samples that were examined. The data relative to Brix, polarization and apparent purity need no comment except to point out that the values showed that the juices were, in most cases, of good quality. Th relationship between apparent purit and true sucrose on Brix solids wa not very consistent although, i general, the latter values exceede the former. The reason for th large divergence between these va ues for one sample of C. P. 46/5 is not known. The nonsugar cor tent of the juices was within th normal range for whole mill juice with the possible exception of on of the C. P. 46/51 cane samples.

Much of the data relating to cla

Table 1. Analysis of Mixed Juices

Variety	Raw Juice						Juice Clarified at 8.2pH					Dat of Milli
	Ash	P_2O_5	Total N	Brix	Pol	App. Pur.	Sucrose	Red. Sugars	Non-Sugars	P_2O_5	N	
	gm/100ml	gm/100ml	gm/100ml	°	°	%	%	%	%	gm/100ml	gm/100m	194
C. P. 34/120, 1st Stubble	------	.046	.029	------	------	------	82.57	6.66	10.77	.0011	.017	11/
C. P. 36/105, Plant	.435	.071	------	13.36	10.69	80.0	83.83	7.70	8.50	.0042	------	11
C. P. 36/105, Plant	.381	.060	.046	14.81	11.41	77.0	79.77	8.72	11.51	.0021	.028	12
C. P. 43/47, Plant	.354	.054	.045	15.42	12.42	80.5	80.64	7.63	11.73	.0012	.029	12
C. P. 44/101, Plant	.386	.065	.027	14.91	11.99	80.4	81.97	8.15	9.82	.0027	.012	11/
C. P. 44/101, Plant	.370	.051	.035	14.51	12.01	82.8	82.40	8.79	8.71	.0011	.017	12
C. P. 44/155, Plant	.438	.053	.031	15.65	13.05	83.4	83.83	5.81	10.56	.0036	.016	12
C. P. 46/51, 1st Stubble	.496	.071	------	10.86	7.47	68.8	67.36	18.22	14.42	.0034	------	11
C. P. 46/51, Plant	.520	.068	------	12.93	9.60	74.2	80.44	11.34	8.22	.0019	------	11/
C. P. 46/193, 1st Stubble	.461	.049	------	13.63	10.53	77.3	77.96	11.68	10.36	.0019	------	11
C. P. 46/193, Plant	.444	.062	------	15.39	12.44	80.8	81.06	9.80	9.14	.0027	------	11/

Table 2. Clarification Data

Variety and No. of Samples	Mud Volume after settling			pH		Weight Muds	Filtration Rate
	10 feet	30 feet	60 feet	Before heating	After clarification		
	%	%	%			gm/100ml	Sec./90m
C. P. 34/120	23	18	14.5	6.8	6.05	----	100
	33	25	21.5	7.4	6.45	----	50
1	39	28	23.5	7.8	6.75	----	30
	44	31	26	8.2	7.25	----	100
	14.5	10.5	9.5	6.8	6.35	----	> 120
C. P. 36/105	41.5	29.5	24	7.4	6.65	----	25
2	48	32.5	27	7.8	7.1	.49	90+ > 120
	60.5	40	29.5	8.2	7.6	----	68
	32	26	23	6.8	6.25	----	75
C. P. 43/47	30	32	25.5	7.4	6.6	----	55
1	40	29	25.5	7.8	7.15	.44	45
	50	38	30	8.2	7.75	----	35
	24	18.5	16.5	6.8	6.20	----	44
C. P. 44/101	51.5	30	25	7.4	6.55	.42	29
2	47.5	30	24.5	7.8	6.8	----	37
	50.5	33.5	29	8.2	7.3	----	75
	6	5	4.5	6.8	6.25	----	> 120
C. P. 44/155	52	26.5	21.5	7.4	6.6	----	> 120
1	48	----	24	7.8	6.8	.41	42
	50	----	26.5	8.2	7.2	----	> 120
	16.5	14	11.5	6.8	6.2	----	> 120
C. P. 46/51	35	25	21	7.4	6.5	.45	42
2	41*	30*	25*	7.8	6.95*	----	30
	40*	30	25	8.2	7.2	----	90+ > 120
	13	9.5	8.5	6.8	6.35	----	> 120
C. P. 46/193	33	24	19.5	7.4	6.6	.45	78
2	48*	26*	24*	7.8	6.85*	----	105
	42	28.5	23.5	8.2	7.5	----	30

* These results represent 1 sample only.

fication are reported in Table 2. At pH of 6.8 (before heating), clarification was relatively poor and yielded cloudy or "muddy" juices. The average elimination of phosphorus pentoxide from these samples amounted to about 66% and of nitrogen, about 34%. One of the striking features of this clarification was the low volume of mud produced. It is not known how customary it has been for operators to clarify their juices at this or lower reactions, but it is quite probable that it has been used many times as a means of reducing mud volumes. In view of the poor elimination of nonsugars, it does not seem good practice to use such a low pH reaction.

Clarification at the other reactions tested, rated from good to excellent in all cases. Increasing the amounts of lime increased the elimination of both phosphorus pentoxide and of nitrogen which ranged from about 87% to 97% and from 43% to 47%, respectively. If these constituents are calculated as calcium phosphate and protein (N × 6.25), they account for about 50% of the weight of the muds obtained. Further, there seemed to be a direct correlation between the amount of these constituents precipitated and the volume of the resulting muds; plotting these values, a straight line fitted the data as well as could be expected. These tests showed that the increase in volume resulting from an increase in pH is due primarily to the additional amounts of phosphate and protein that are precipitated, small as the weights are.

The difference in the appearance of the clarified juices from the different varieties was striking only in respect to color. The variety C. P. 43/47 yielded exceptionally light colored juices. If it is released for commercial planting, it would make an excellent cane for the production of table syrup, direct consumption sugars, and fancy molasses. At the other extreme, was juice from C. P. 36/105 cane. Clarified juices from this cane, although clear, were usually so dark that it was impossible to see through a layer 2½ inch in depth against a strongly lighted background. For the production of those products just mentioned, it would seem advisable to take juice color into consideration in selecting the varieties to be grown or processed. However, judging from the wide-spread expansion of C. P. 36/105 plantings, it appears that this characteristic of its juice has not been considered.

The data show that all the juices examined yielded rather large mud volumes. There seemed to be no significant difference between the varieties in comparing the tests at any uniform pH value. Since cultural conditions cause greater variations in the composition of juice than do varietal differences, these are certain to be reflected in the amount and volumes of clarification muds that are obtained.

A measure of the bulkiness of the muds is the ratio of their weight to their volume after settling for some definite period. When expressed as a percentage, the values represent the content of insoluble solids in the settled muds. In these experiments, at the settling the value ran below 2% which is considerably smaller than desirable. Such muds are classed as soft or "soupy" and, unfortunately, are quite typical of Louisiana juices. It ought to be pointed out, however, that the experimental conditions favored the production of bulky muds. These conditions were fine screening the juices and using the cold liming procedure. It is, of course, not known whether a sugar factory would obtain similar mud volumes in practice for they must always operate under quite a different set of conditions than was employed in this study.

If the rate of settling is measured by the depth of the clear juice in unit time, those samples con-

(Continued on page 332)

PRICE RELATIONSHIP BETWEEN FEED MOLASSES AND CORN

The amount of molasses consumed for feed purposes has steadily risen since World War II. According to trade reports, an estimated 177.5 million gallons of molasses were used in livestock feeds in 1949 as compared to 49 million gallons in 1943. One of the principal factors causing this upward trend in molasses consumption by the feed trade is the price spread between molasses and corn. The price relationship between these two feeds in Louisiana during the past fifteen years has favored the use of molasses each year except in 1941 and 1942. This was at a time when the United States became actively engaged in war and molasses prices rose more sharply than did corn prices probably due to the fact that molasses suddenly became a critical product.

Molasses prices, like other commodity prices, continued strong through the war years. In 1947 blackstrap prices reached a peak and the following year abruptly dropped to a very low level. Whereas Louisiana corn prices also reached a peak in 1947, since then they have gradually levelled off.

During the spring months of 1950 molasses prices slowly began to turn upward. In spite of today's rather firm blackstrap prices, molasses is still priced favorably in relation to corn. Corn at $1.25 per bushel is equivalent to 19.2 cents a gallon molasses, and $1.50 corn is about th same as molasses at 23 cents pe gallon.

Table 1. Comparative Average Prices of Corn an Blackstrap Molasses in Louisiana, 1935-49.

Year	Average Price of Corn, per Bushel[1]	Average Price of Blackstrap Molasses[2]		Price o One Bush of Corn Minus th Price of 6 Gallons Molasse
		Per Gallon	Per 6½ Gallons*	
	dollars	cents	dollars	dollars
1935	.71	6.094	.40	.31
1936	.96	6.17	.40	.56
1937	.66	5.3278	.35	.31
1938	.52	2.9976	.19	.33
1939	.64	5.0892	.33	.31
1940	.65	6.4087	.42	.23
1941	.83	16.186	1.05	—.22
1942	.99	17.824	1.16	—.17
1943	1.35	18.00	1.17	.18
1944	1.39	17.673	1.15	.24
1945	1.39	18.00	1.17	.22
1946	1.79	18.00	1.17	.62
1947	2.20	26.762	1.74	.46
1948	1.60	9.6998	.63	.97
1949	1.35	5.6416	.37	.98

[1] Seasons' average price per bushel received by Loui ana farmers.

[2] These are seasons' average prices based on prom shipment sales in bulk (5 tank cars or more) to recogniz dealers f.o.b. plantation. Prices for smaller quantities molasses would be slightly higher and would make t difference between corn and molasses slightly less favorat to molasses than is shown in the last column above.

* Approximately 6½ gallons of molasses is equal to t feeding value of one bushel of corn.

In making price and value cor parisons of molasses against cor and other feeds, it is not intende to show that molasses should com pletely replace corn and other grain as a feed. The point that should b made clear is that molasses has def nite properties which make it a ver valuable feed, and up to a certai price level it should be fed as component part of the daily ratio for livestock.

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SOME OBSERVATIONS ON SUGARCANE FLOWERING AND SEED PRODUCTION IN LOUISIANA AND AN EXPERIMENT ON PRODUCTION AND STORAGE OF TRUE SUGARCANE SEED

By E. V. Abbott, Principal Pathologist, Division of Sugar Plant Investigations, Bureau of Plant Industry, Soils and Agricultural Engineering, Agricultural Research Administration, U. S. Department of Agriculture.

Occasional flowering of commercial varieties of sugarcane near the seaboard in Louisiana was reported at least 120 years ago[1] and perhaps earlier. The published report was by a committee composed of Messrs. John S. David, George Mather, Robert C. Nicholas, John B. Armand, and Valcour Amiè in answer to a questionnaire distributed by the Federal Secretary of the Treasury. The same phenomenon was reported separately by F. Henderson and Philip Hickey. The varieties which bloomed were not specified by these observers but in the same communications they listed Creole (Puri), Otaheite, Green Ribbon (a color variant of Otaheite), Red Ribbon (Striped Preanger), and Blue or Batavian (Black Cheribon) as being produced commercially in 1830. None of these early observers reported seed production in Louisiana but inferentially Hickey may have done so since he stated his "belief" that cane "never produces seed capable of generation above the twenty-first degree of latitude". Except Creole, the varieties mentioned are all of the thick-stemmed tropical species *Saccharum officinarum* L., and Creole is presumed to be a natural hybrid predominantly of that type. These tropical varieties and other similar ones, which were grown in Louisiana until about 20 years ago did not complete their life cycles and produce seed locally.

Since the development and commercial adoption of the species hybrids now used in Louisiana, it was to be expected that in years favorable for flowering these varieties would produce more perfectly developed flowers and perhaps viable seeds because *of the profuse flowering habits* of the Temperate Zone species represented as components in the hybrids. Hybrids of somewhat similar constitution (not commercial varieties) have bloomed profusely and produced seed at the U. S. Sugar Plant Field Station, Houma, La. It is not likely that the commercial varieties with a large admixture of *S. officinarum* will bloom regularly and produce viable seed in any part of Louisiana. Of some interest, however, is the observation that in the winter of 1949-50 perfectly formed seeds were produced and seedlings have been raised from them.

Within the past 20 years fairly extensive flowering of commercial varieties occurred in Louisiana in the late fall of 1941 and 1949. In 1949 the flowering began earlier than in 1941, was more general, occurring in most parts of the district where cane was left standing, and continued over a considerably longer period owing to the absence of a killing freeze during the entire winter in some areas. The profuse and general flowering has aroused considerable interest and speculation as to the cause.

The conditions that govern the flowering of sugarcane are not all thoroughly understood. It is known that length of day is one of the important influencing factors, but, as stated by Sartoris[2]—it is known that the natural change in day length is not a dominating influence, because these changes are constant from year to year, while the flow-

(Continued on next page)

GOVERNMENT PURCHASES ALL REMAINING CUBAN SUGAI

As this issue of THE SUGAR BULLETIN goes to press news is received from Washington that the U. S. Department of Agriculture has purchased all the remaining Cuban sugar. A wire from the Washington office of the American Sugar Cane League regarding this purchase reads as follows:

"U. S. Department of Agriculture announced July 27th, 1950 it had offered to buy total remaining stocks of Cuban sugar. This amounts to slightly in excess of 600,000 short tons and will raise the U. S. supply to a figue far in excess of any previous war or peace time distribution. The Cuban Government has agreed to hold this sugar for th U. S. Government until price ar delivery schedules can be worke out. Any amount in excess of U. S needs will be available for re-sa into world market at U. S. cost Signed C. J. Bourg.

The Louisiana Sugar Exchang reports that the domestic sugar fu ture market known as contract # declined 1 to 5 points and that th future market on world sug known as contract #4 closed 1 points up to 11 points down aft the first day of trading followin the announcement. Spot raws we unchanged in New York at 6.20 wit sellers asking 6.25.

ST. JAMES FIELD DAY AUGUST 10th

The annual sugarcane field day of St. James Parish will be held this year on Thursday, August 10th and everyone interested in cane and sugar production in Louisiana is cordially invited to be present.

The St. James Sugar Cane Field Day is one of the outstanding agricultural events of the season and those who have attended this gathering in past years know what a fine time everyone has. The field demonstrations are of the highest orde and the hospitality is in true south ern style. You will thoroughly enjo it.

The activities are scheduled to b gin at the St. James High School i St. James at 9 o'clock in the morn ing.

Mr. Clarence J. Bourg, manage of the Washington office of th American Sugar Cane League, wi be the principal speaker.

OBSERVATIONS

(Continued from page 329)

ering of sugarcane is not constant. There are varieties that flower almost every year, some that seldom flower, and many that are irregular in their flowering—It is apparent, therefore, that there are factors, besides length of day, that influence flowering".

It is evident from the record of flowering in Louisiana that some conditions other than length of day alone are concerned. Among the things that may possibly have an influence are abnormally high temperatures coinciding with shortening length of day, and excessive moisture. Some interesting observations regarding the effect of thes two factors were made by Sartor and Belcher[3] when the Canal Poin Florida, breeding station was floo ed as a result of a severe hurrican According to these authors, "Flow ering of the breeding canes and th variety collections in general wa profuse, and developed one or tw weeks earlier than usual. The earl and profuse flowering was prob ably due in part to the warm wea ther that prevailed during Octobe and early November, and perhap to some extents to the flooding— is not possible, of course, unde natural conditions to isolate th effects of temperature and floodin but from past experience it

nown that temperature is a factor f cardinal importance".

While it can not be said with ertainty that rainfall had no inluence on the flowering of cane in ouisiana in 1941 and 1949, it eems doubtful that it played a ıajor role. In 1949, rainfall for ıe months preceding the beginning f flowering was somewhat above ormal, but in 1941, when flowering lso occurred, rainfall for this per›d was near normal.

Abnormally high temperatures uring October probably had the reatest influence on flowering since ı both 1941 and 1949 the average ıaximum, minimum, and mean for ctober were considerably above the ›ng-time averages. In 1941 at ouma the average daily mean was °, and in 1949, 6° above the longme average (42 years up to 1941, nd 50 years up to and including 949). The high temperature, coıciding with the shortening day ngth, which also favors flowering, as probably an important factor ıfluencing the flowering of comıercial varieties that occurred in ouisiana in those years. Howver, it may be expected that the arieties of sugarcane now grown ›mmercially in Louisiana, which re essentially new kinds of cane epresenting a blending of diverse ncestry, will respond differently to ıis environment with respect to looming just as they have shown ıemselves capable of reacting diferently than the varieties formerly rown to other elements of the ıvironment.

Several wild forms of sugarcane ıat have been under study at the ouma station at various times have loomed in all years that they have een grown there. Of particular ıterest among these are the forms f *Saccharum spontaneum* from urkestan that were being studied ecause of their ability to withstand w temperatures. The original ›rms bloomed at Houma in late ıne, while hybrids between these wild forms and Noble-type canes bloomed in late September or early October. They often produced viable seed which in some years germinated in the field after shedding. Prior to the winter of 1949-50, however, there appears to be no record of production of viable seed from any commercial variety in Louisiana. This is probably because the varieties that have bloomed in the past were male sterile. Among the varieties that have bloomed in Louisiana and from which attempts to obtain seed have been made at various times are Co. 281, and the C. P. numbers 29/103, 29/116, 34/120 and 36/13.

Aside from the wild species canes mentioned earlier, no variety that normally produces pollen was growing in Louisiana under conditions that would influence flowering until the fall of 1949, when C. P. 36/105 bloomed in both commercial fields and experimental plots. This variety has bloomed and has been used as a male parent at the Canal Point station every year since 1946. At the Houma station it began blooming in December, 1949, and continued to produce new flowers until early March. Several other varieties also bloomed there during this period including C. P. 29/103, 29/120, 36/183, 44/101 and 44/155, but they did not produce fertile pollen.

Beginning the first week in January and continuing at intervals of about 10 days, mature arrows of the 36/105 were collected, dried, and planted in steamed soil in the greenhouse by the usual method for handling true sugarcane seeds. No viable seed was produced until late February, when several hundred seedlings were obtained from arrows collected at that time.

In January several crosses were set up, using C. P. 36/105 as the male variety and others of the varieties as females, but these arrows were broken off by a high wind before they matured.

An Experiment on Storage of Sugarcane Seed

It frequently happens in the breeding work that in years when parent varieties flower profusely and over a prolonged period, more seed is produced than can be handled in one season. Usually the seed from the proven or apparently more promising crosses has been germinated, while only portions of that from combinations of unknown performance have been utilized. In 1949 an experiment was carried out to determine the feasibility of storing excess seed for at least a year during which time some appraisal of the seedlings from new combinations could be made in the field.

Excess seed of 6 crosses from the 1948 breeding season was divided into 3 lots in January, 1949. One lot of each was stored in a desiccator over calcium chloride at room temperature, a second was placed in tightly sealed jars and stored in an electric refrigerator at 45-50° F., and a third in sealed jars was stored in a freezing unit at approximately 0° F[4]. Samples from each lot were planted in steamed soil in the greenhouse in January, 1950.

The frozen seed from all 6 crosses gave excellent germination and the plants emerged about 12 hours earlier than those from lots stored at higher temperatures. Seed of 4 crosses gave good germination (but not equal to that from frozen seed) after storage in the refrigerator, 1 was fair and 1 was poor. From seed stored at room temperature, germination was good from 2 crosses, fair from 2 and poor from 2.

That sugarcane seed may retain its viability after storage at ordinary refrigerator temperatures has been known for some time. The writer is unaware, however, of any previous report of the germination of frozen seed. Since there was no apparent loss of viability after storage at 0° F. for a year, this appears to offer a means of conserving excess seed from good breeding seasons for at least a year, during which time some evaluation of th seedlings from new combinatio can be made in the field. Whe several good breeding seasons occu in succession this conservation seed might not be of great impor ance, but in years when little or r seed is produced seed saved fro previous seasons might be used fill in the gap.

[1] Ingram, S. D. Letter from the Secretary of t Treasury. House of Representatives Document 62, 2 Congress, 2nd Session, Washington.

[2] Sartoris, G. B. The behavior of sugarcane in relati to length of day. Proc. 6th Cong. Internat. Soc. Sug cane Techn. pp. 796-802, 1938.

[3] Sartoris, George B., and Belcher, Pascom A. T effect of flooding on flowering and survival of sugar ca Sugar 44:36-39, 1949.

[4] Space in the freezing unit was kindly supplied by R. Balch, Bureau of Agricultural and Industrial Chemist United States Department of Agriculture.

COMPOSITION

(Continued from page 327)

taining the lowest final mud vo umes usually were the faster sett ing. By factory standards, the ra was slow in all cases, but it is ver probable that the rate would greatly increased under factor conditions due to the profound i fluence of dirt, soil, and other ba lasting constituents normally pre ent in factory juices. Since th juices from the newer canes ha about the same settling characte istics as juice from C. P. 34/12 cane, it can be concluded that th juices from the newer canes po sessed no unusual clarificatio characteristics.

The drop in the pH during clar fication varied some between san ples as is always found in any serie of tests. It was not possible t distinguish any varietal difference In practice, it is probable that th decrease would be larger than tha found in these tests due to the lon ger time the juices are in proces and the higher temperatures i volved.

The results on filtration of clar fied juice were not consistent an are difficult to interpret. In gene ral, clarity increased with the pl of clarification, but this did no correlate with the filtration rate c the juices. At least, very frequent

y, the higest filtration rate was obtained on juices clarified at either 7.4 or 7.8 pH in spite of less visual clarity. Perhaps this result ought to be expected since so many different combinations of constituents which can and do affect the filtration rate occur in cane juices.

Clarified juices, with a very few exceptions, showed starch ranging from weak to strong when subjected to a qualitative test. Since the actual amount of starch in these samples was not determined, one can only conjecture whether the amount was sufficient to affect seriously the workability of the juices and sirups in the boiling house are the quality of the products.

Summary

It can be concluded that none of the juices tested could be classed as refractory in their clarification characteristics. Large mud volumes, although no worse than C. P. 34/120, can be expected so long as the content of precipitable phosphates and nitrogen compounds remain at their present high levels. However, it appears that these important constituents are not much in excess of the amount required to clarify the juices. Elimination of phosphates and nitrogen increase with the pH of clarification up to the highest point that was tested—8.2 pH. Juices of very dark color were characteristic of C. P. 36/105 and of very light color of C. P. 33/47; the other canes yielded juices having a color intermediate between these extremes. Apparent clarity of juices increased up to 8.2 pH, also, but there is some indication that the optimum level of liming, from the practical standpoint, is a little lower than this value.

[1] Agricultural Chemical Research Division Contribution No. 260.

[2] One of the laboratories of the Bureau of Agricultural and Industrial Chemistry, Agricultural Research Administration, U. S. Department of Agriculture.

* The writers are indebted to G. Arceneaux, L. P. Hebert, and R. Matherne, Division of Sugar Plant Investigations, Bureau of Plant Industry, Soils and Agricultural Engineering, for making available for this study the juices from their mill tests.

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(1) Arceneaux, G., Krumbhaar, C. and Bisland, R. B. Facts about Sugar 28, 350-3 (1933).
(2) Fort, C. A. and McKaig, Jr., Nelson. U. S. D. A. Tech Bull. 688, Oct. 1939.

IN WASHINGTON

(Continued from page 324)

"Chairman Kee. I understand that in addition to the interprative notes set forth in annex P to the charter there are several subcommittee reports adopted by the Habana

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conferences which contain explan
tory comments on the text. What
the effect of these notes and sul
committee reports?

"Mr. Thorp. Mr. Chairman, th
notes are a part of the docume
and approval of the charter wou
include approval of the notes. The
are an integral part of it. The r
ports are reports of the subcommi
tees which developed various cha
ters in the charter. They are a pa
of the negotiating history but the
have no legal force with respect
any interpretations of the documen

"However, we have examine
the subcommittee reports an
there is nothing in the repor
which would change in any way th
testimony that I have given or th
opinion which I have just expresse
with respect to the Sugar Act, sp
cifically.

"Mr. Vorys. Mr. Chairman, cou
I ask a question?

"Chairman Kee. Mr. Vorys—

"Mr. Vorys. Is the reason tha
the Sugar Act would not contraver
the charter the manner in which
limits domestic production, as we
as imports? Is that the reason?

"Mr. Thorp. That is right. It
because the problem is approache
without an effort to shift it ove
entirely on the foreign persons, bu
we have taken steps within th
United States to deal with it whic
therefore permits us to restrict th
access of foreign suppliers to ou
markets. That is the basic justif
cation of it.

"Mrs. Bolton. To bring this abou
our own sugar growing has bee
very definitely restricted.

"Mr. Thorp. That is right.

"Mrs. Bolton. On that Mr. Vory
and I share a common anxiety b
cause ours is a very large beet-suga
area.

"Mr. Thorp. We have also at th
same time curtailed our purchase
from Cuba."

We are convinced that the matte
discussed makes it very clear an
unquestionable that the Sugar A

an be maintained and extended, in ts present provisions, not only with egard to the quotas with respect to aw sugar, but likewise to the quo- as imposed on refined and liquid ugars.

New Sugarcane Adapted to Mechanical Harvesting

A new variety of sugarcane is vhat might be called a machine- nade sort because of certain charac- eristics that fit it to mechanical iarvesting. It is C.P. 43/47, an- nounced jointly by the U. S. Depart- nent of Agriculture, the Louisiana Agricultural Experiment Station, nd the American Sugarcane League f the U.S.A., Inc. This new variety s the latest of a long series of hy- rids better adapted to the Gulf States developed since the practical uin of the Louisiana sugar planta- ions by mosaic disease a quarter entury ago.

This new variety, according to Dr. E. W. Brandes, in charge of the Division of Sugar Plant Investiga- ions, is equal in yield to C.P. 36/ 05, the most successful variety pre- iously developed for the region by he three cooperating agencies. In ddition, he says, it is more satis- actory in meeting such require- nents of mechanized harvesting as rect growth, stalks of uniform ength, and no bad tendency to reak during cutting and stacking.

As with many other crops in hese days of increasing farm nechanization, the sugar planters vill accept only moderate excellence n some of the former determining actors, if they can have a variety nat makes possible rapid, comfort- ble and economical harvesting and product of reasonably good quali- y.

C.P. 43/47 isn't perfect in a num- er of ways, but not being too low n any important factor and a good t mechanically, it is expected to nd favor in the considerable areas f Louisiana where soils are suit- ble for it.

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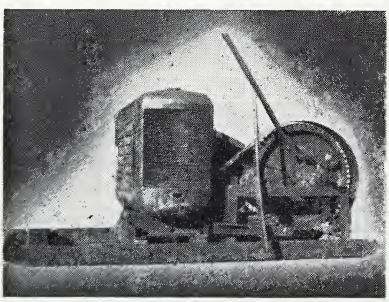

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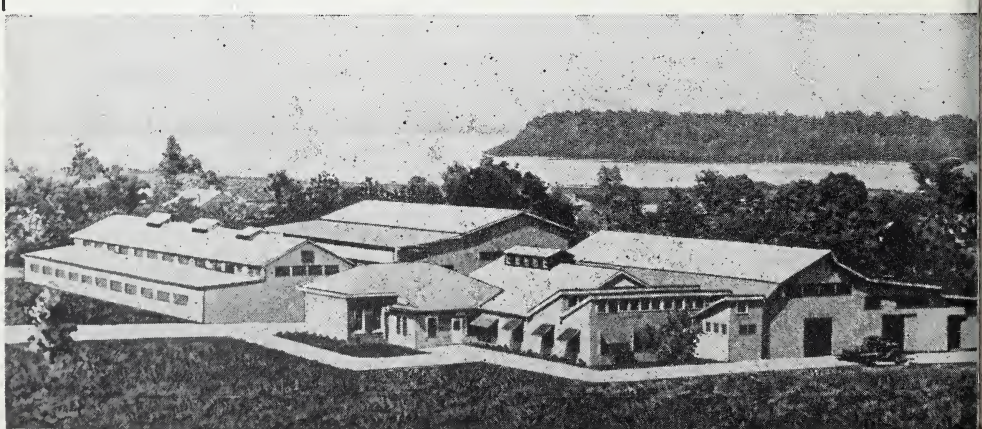

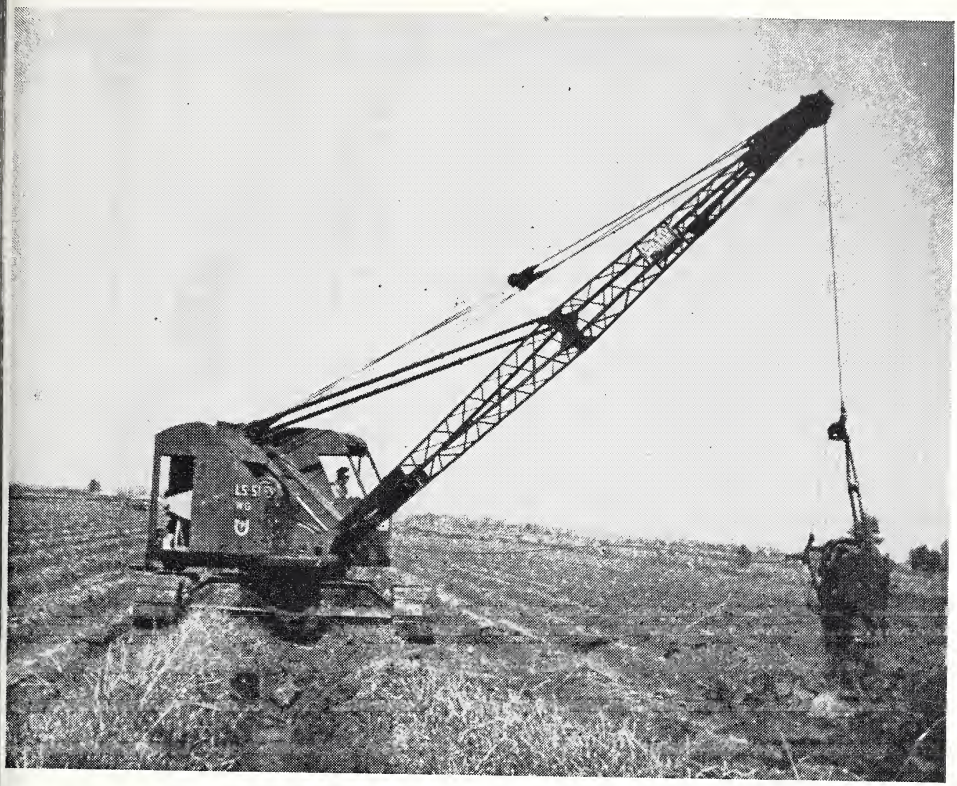

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CROPLAND—PROPORTIONATE SHARE—PLANTED ACRES OF LOUISIANA SUGARCANE FARMS PARTICIPATING IN THE SUGAR PROGRAM (SUGAR ACT OF 1937) BY PARISHES, FROM A.. A. A. REPORTS

PARISHES	Cropland (Acres)				Proportionate Shares (Acres)				Total Planted (Acres)			
	1946	1947	1948	1949	1946	1947	1948	1949	1946	1947	1948	1949
Ascension	25,412	23,670	24,564	25,259	10,899	12,417	13,436	14,363	12,310	12,779	13,507	14,434
Assumption	45,164	45,176	47,344	47,889	25,569	28,343	29,905	30,907	28,140	28,715	29,915	31,070
Avoyelles	7,900	8,637	9,729	7,997	1,511	2,034	2,822	2,204	2,181	2,834	3,057	2,255
East Baton Rouge	822	823	1,344	1,288	218	277	585	437	232	277	585	495
Iberia	75,478	75,067	76,443	75,581	29,652	34,432	35,766	37,376	35,826	37,328	35,839	37,438
Iberville	46,938	43,290	43,825	41,941	19,084	21,163	21,453	19,845	22,366	22,511	22,051	21,120
Lafayette	30,729	26,839	29,276	26,160	8,624	9,570	10,094	9,317	10,019	9,736	10,109	9,322
Lafourche	54,410	54,775	54,696	54,615	23,646	28,257	28,504	29,008	25,700	28,266	28,504	29,008
Pointe Coupee	35,991	56,434	35,769	33,469	9,916	11,159	11,314	10,370	11,316	11,540	11,316	10,370
Rapides	3,999	5,062	7,196	6,683	1,052	1,471	1,934	1,757	1,245	1,566	2,119	1,782
St. Charles	4,271	4,137	4,248	4,117	1,518	1,012	1,502	1,646	1,659	1,582	1,502	1,646
St. James	31,339	32,306	32,380	32,621	15,215	17,656	17,984	17,825	16,422	17,662	17,991	17,832
St. John	25,370	25,543	26,204	25,893	12,642	13,188	14,850	15,103	14,778	15,014	15,295	15,314
St. Landry	5,339	4,839	5,509	5,551	837	953	923	838	948	953	923	1,017
St. Martin	48,022	47,257	50,531	48,900	13,145	15,399	17,590	17,104	17,085	16,107	17,590	17,104
St. Mary	56,911	59,119	60,370	59,960	30,397	34,588	33,420	34,730	33,723	34,590	33,420	34,770
Tangipahoa				15				2				3
Terrebonne	57,716	57,677	58,427	58,639	31,601	35,122	34,802	35,714	34,521	35,180	34,807	35,749
Vermilion	23,035	18,483	20,242	19,374	4,848	4,992	4,566	5,127	6,369	5,775	5,079	5,228
West Baton Rouge	27,608	26,699	27,578	27,226	11,551	11,821	13,700	13,751	14,567	14,101	13,700	14,024
West Feliciana	12,655	14,568	14,568	14,567	3,547	3,553	3,688	3,337	3,960	3,700	3,688	3,337
TOTAL	619,118	610,670	630,243	617,753	255,479	287,407	298,838	300,769	293,376	300,216	300,997	303,327

PROPORTIONATE SHARE ACRES HARVESTED FOR SUGAR—YIELD OF SUGARCANE PER ACRE AND YIELD OF RECOVERABLE SUGAR PER ACRE OF LOUISIANA FARMERS PARTICIPATING IN THE SUGAR PROGRAM (SUGAR ACT OF 1937) BY PARISHES FROM A. A. A. REPORTS

PARISHES	Proportionate Shares Harvested for Sugar (Acres)				Yield of Cane Per Acre Tons				Yield of Recoverable Sugar per Acre CWT			
	1946	1947	1948	1949	1946	1947	1948	1949	1946	1947	1948	1949
Ascension	11,698	11,444	12,488	13,606	17.61	15.89	20.14	20.79	29.81	26.20	32.00	32.69
Assumption	27,570	26,084	27,641	29,165	18.00	17.54	21.06	19.99	30.32	29.69	33.63	32.21
Avoyelles	1,694	1,358	2,479	2,103	14.84	13.28	18.06	21.31	23.86	23.23	28.74	35.40
East Baton Rouge	232	264	517	418	20.84	17.31	21.49	25.53	33.33	26.53	34.18	38.85
Iberia	32,619	30,488	32,308	34,316	17.03	13.58	17.84	17.39	28.43	22.95	27.90	28.54
Iberville	21,249	18,891	19,419	18,289	18.99	15.88	20.24	19.80	30.78	26.43	31.45	31.80
Lafayette	9,569	8,279	9,158	8,696	15.29	10.35	12.79	17.79	27.10	18.65	20.84	29.40
Lafourche	25,693	26,202	26,490	26,939	17.91	16.56	19.61	16.95	31.14	28.20	31.99	28.38
Pointe Coupee	10,723	10,246	10,728	9,773	17.58	14.47	19.56	19.10	29.36	25.22	31.39	30.41
Rapides	1,127	1,387	1,842	1,740	22.76	19.15	21.02	24.19	38.15	33.85	34.92	39.75
St. Charles	1,659	883	1,362	1,564	13.95	14.07	20.39	13.09	22.20	24.25	34.82	21.63
St. James	16,331	16,422	16,868	16,865	17.95	16.57	20.27	18.88	30.82	28.83	33.48	30.88
St. John	13,777	11,944	13,654	14,019	17.32	15.84	19.24	17.58	30.57	27.54	32.86	28.84
St. Landry	934	884	898	758	14.50	12.64	17.86	15.70	23.26	22.31	28.35	26.88
St. Martin	14,974	13,159	15,645	15,638	17.22	14.57	18.86	18.80	28.38	24.44	28.84	31.59
St. Mary	33,501	31,205	30,234	31,893	17.05	14.74	18.14	15.00	29.71	24.78	29.20	24.53
Tangipahoa				2				21.48				31.91
Terrebonne	34,498	32,034	32,161	32,781	16.85	15.41	19.57	15.71	28.98	25.63	32.37	25.88
Vermilion	5,290	4,456	4,151	4,668	14.03	7.37	14.70	16.44	23.63	12.98	23.91	27.68
West Baton Rouge	12,681	9,963	12,468	12,613	17.84	13.69	20.76	19.94	30.32	23.05	33.22	31.91
West Feliciana	3,747	3,227	3,430	3,005	24.40	14.82	20.91	17.28	39.61	27.40	36.20	30.83
TOTAL	279,575	258,890	273,041	278,859	17.60	15.14	19.19	17.88	29.49	25.68	30.91	29.23

Total for State Factories	66	65	65	65	70	63	60	59	59	54
Year	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949
Crop Days	39.85	52.35	65.20	82.33	75.65	74.50	66.20	68.50	78.8	67.4
Lost time % total time	15.91	19.63	19.49	24.87	23.74	21.28	19.44	28.42	22.98	16.45
Cane: Tons ground, gross weight	2,923,204	3,946,699	4,734,321	5,388,245	4,928,686	5,149,266	4,483,843	4,045,964	5,459,637	5,210,195
Tons ground, net weight								3,917,100	5,256,644	4,983,982
% Total Cane Ground	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Tons Ground per Hour	54.25	55.83	55.27	55.84	51.59	55.40	55.57	55.48	60.47	67.63
Extraction N. J. % Cane	75.16	75.39	74.41	74.87	73.27	73.47	72.32	70.61	71.90	72.86
Sucrose Extraction, %	91.30	91.74	91.14	90.93	90.13	91.08	90.06	89.06	89.58	90.57
Maceration % Cane	15.00	15.66	17.71	17.07	16.13	13.13	16.02	19.40	17.74	17.63
Fiber % Cane	13.06	13.38	13.99	13.86	14.25	14.17	14.84	15.15	14.95	14.58
Java Ratio	78.19	78.14	77.63	78.17	77.31	76.76	75.82	75.39	75.83	76.66
Analysis										
Crusher Juice Brix	15.81	16.27	16.83	16.77	16.32	16.19	16.50	16.53	16.32	16.66
Brix Factor (Final)	97.22	97.30	97.21	97.08	97.43	97.34	97.21	97.52	97.12	97.06
Sucrose Factor (Final)	94.98	95.07	95.06	94.94	95.05	95.18	94.40	95.14	94.45	95.30
Normal Juice Brix	15.37	15.83	16.36	16.28	15.90	15.76	16.04	16.12	15.85	16.17
Normal Juice Sucrose	11.93	12.14	12.70	12.39	11.93	11.86	12.31	12.33	11.91	12.37
Normal Juice Purity	77.62	76.69	77.63	76.10	75.03	75.25	76.74	76.49	75.14	76.38
Factory Syrup, Brix	58.52	59.68	57.91	58.53	58.08	57.41	57.20	56.92	57.22	58.56
Residual Juice Brix	5.84	5.88	5.93	6.03	6.34	6.40	6.51	6.27	6.50	6.23
Bagasse Sucrose	3.07	2.93	3.07	3.11	3.07	2.97	3.08	3.16	3.08	2.90
Bagasse Moisture	48.94	48.64	49.00	49.09	49.38	48.80	49.23	49.87	49.28	49.27
Bagasse Fiber	46.95	47.56	46.81	46.67	46.29	46.88	46.39	45.69	46.19	46.43
Press Cake Sucrose	3.93	3.78	4.24	4.14	3.81	4.02	3.98	3.86	4.18	3.68
Sucrose Balance										
Molasses, Sucrose % Cane	.969	.961	.945	1.067	1.047	1.130	1.001	1.012	1.084	.996
Press Cake, Sucrose % Cane	.082	.078	.081	.081	.104	.104	.120	.168	.191	.147
Undetermined, Sucrose % Cane	.141	.183	.198	.253	.266	.212	.297	.365	.273	.211
Bagasse, Sucrose % Cane	.854	.824	.919	.925	.956	.853	.983	1.069	.997	.938
Total Losses, Sucrose % Cane	2.046	2.046	2.143	2.326	2.373	2.299	2.401	2.614	2.545	2.292
Sugar, Sucrose % Cane	7.775	7.933	9.229	7.875	7.322	7.266	7.486	7.157	7.017	7.659
Total, Sucrose % Cane	9.821	9.979	10.372	10.201	9.695	9.565	9.887	9.771	9.562	9.951
Pounds 96° Sugar M&E Ton Gross Cane	161.98	165.28	171.44	164.06	152.50	151.37	155.95	149.10	146.19	159.56
Pounds 96° Sugar M&E Ton Net Cane										166.80
Gallons, Final Molasses, M&E t/c	6.28	6.69	6.59	7.16	7.38	7.48	6.74	6.78	7.15	6.80
Boiling House Efficiency Number	98.00	98.69	98.29	97.10	96.64	96.04	95.64	93.73	94.39	96.97

LOUISIANA MILL REPORTS

Production of Sugars (tons, 2,000 lbs.), Syrup, 1st Molasses, 2nd Molasses, and Blackstrap—1940-1949

	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949
Raw Sugar 96°	177,021	252,176	305,802	316,719	259,324	232,442	180,954	211,305	298,371	308,86$_6$
Clarified	1,294	2,731	4,233	17,402	19,892	26,010	28,877	1,378	325	$_0$
Turbinados	16,373	25,425	25,889	34,262	40,405	56,585	53,162	16,243	22,325	26,85$_6$
Granulated	37,464	31,991	51,182	60,663	46,924	42,035	56,633	60,379	65,804	58,74$_6$
Washed Raws	1,236	7,776	8,694	0	0	0	0	xx0	0	
String—Others	1,407	2,144	2,529	2,924	2,834	3,389	1,129	0	755	17^0
Total Sugars (Raw Value)	239,095	322,243	398,330	431,970	369,379	375,398	331,128	296,932	397,293	415,81^8
Sirup—Gallons	1,567,318	1,705,220	1,802,624	4,458,137	2,684,925	7,920,811	3,098,897	3,118,159	494,726	1,075,84^1
1st Molasses—Gallons	1,224,042	2,142,987	3,301,640	5,936,230	3,661,082	8,832,379	9,596,030	2,179,258	2,192,738	1,588,61^3
2nd Molasses—Gallons	1,481,536	2,734,639	4,420,460	4,754,073	3,260,918	6,348,928	3,993,164	2,966,514	1,823,747	1,725,65^2
Blackstrap—Gallons	15,384,342	21,560,072	23,103,373	30,887,281	28,716,392	28,456,351	21,231,304	21,676,476	33,279,520	30,121,52$^5_4$

xx Included in clarified production.

TONS OF SUGARCANE GROUND FOR SUGAR, TOTAL AMOUNT PAID, AND AMOUNT PAID PER ACTUAL TON OF SUGARCANE GROUND BY LOUISIANA SUGAR MILLS, 1949 CROP

Freight Area	Company-Owned Sugarcane				Independent Growers Sugarcane				Total Sugarcane				No. of Mills
	Actual Cane Tons	Standard Cane Tons	Total Amount Paid	Amt. Pd. Per Actual Ton	Actual Cane Tons	Standard Cane Tons	Total Amount Paid	Amt. Pd. Per Actual Ton	Actual Cane Tons	Standard Cane Tons	Total Amount Paid	Amt. Pd. Per Actual Ton	
No. 1	551,546	557,576	$ 3,368,240.29	$ 6.107	858,876	856,127	$ 5,201,372.21	$ 6.056	1,410,422	1,413,703	$ 8,569,612.50	$ 6.076	18
No. 2	346,874	361,797	2,175,267.05	6.271	575,173	599,047	3,611,235.83	6.279	922,047	960,844	5,786,502.88	6.276	11
No. 3	1,231,704	1,243,225	7,597,723.18	6.168	1,412,896	1,461,639	8,953,108.89	6.297	2,653,600	2,704,864	16,550,832.07	6.237	25
State	2,130,124	2,162,598	13,141,230.52	6.169	2,855,945	2,916,813	17,765,716.93	6.221	4,986,069	5,079,411	30,906,947.45	6.199	54

Freight Area No. 1—Mills located north of Bayou Goula between the Atchafalaya and Mississippi Rivers and southeast of New Iberia west of the Atchafalaya River.

Freight Area No. 2—Mills located north and west of New Iberia west of the Atchafalaya River.

Freight Area No. 3—All mills except those included in Freight Areas Nos. 1 and 2.

RECAPITULATION OF FINAL MANUFACTURIN REPORTS OF FLORIDA SUGARCANE FACTORIE CROP 1949-50

	State 3 Factorie
Crop days, average	132
Lost time, % total time	15.1
Tons cane ground	1,125,7
% total cane ground	100.(
Tons ground per hour	139.1
Extraction, normal juice, % cane	78.(
Sucrose extraction, %	92.(
Maceration, % cane	17.(
Fibre, % cane	10.(
Java Ratio	82.(
Analyses:	
Crusher juice brix	16.(
Crusher juice sucrose	13.(
Brix factor	97.(
Sucrose factor	96.(
Normal juice brix	15.(
Normal juice purity	80.(
Normal juice sucrose	12.(
Residual juice, brix	8.(
Factory syrup, brix	59.(
Bagasse, % sucrose	3.(
Bagasse, % moisture	51.(
Bagasse, % fibre	43.(
Press cake, % sucrose	3.(
Sucrose Balance:	
B/S Mols., Suc. in, % cane	1.0
Press cake, Suc. in, % cane	.1(
Undetermined, Suc. in, % cane	.(
Bagasse, Suc. in, % cane	2.1
Total losses, Suc. in, % cane	8.8
Sugar, sucrose in, % cane	10.9
Cane, total sucrose in, % cane	183.
Lbs. 96° sugar, M. & E. T/Cane	6.
Gallons, B/S Mols. 80° Brix, T/Cane	96.
Boiling House Efficiency	

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TEST FIELDS IN THE SUGAR CANE BELT--1949

By C. B. Gouaux, Agronomist, Louisiana State University and Agricultural and Mechanical College Agricultural Experiment Stations, W. G. Taggart, Director

The sugar cane variety project in he season of 1949, consisted of ine plant cane, nine first stubble nd five second stubble fields at ight locations. These fields were arvested during the regular sugar ane milling season, from the middle f October through the first week f January 1950. Final results on he comparative performances of the tandard field and most promising ew sugar cane varieties were ob-ained from a total of twenty-three xperimental fields.

1949 Season

During the early part of the year, ne last killing freezes occurred n late January and early February. 'his was followed by a very wet nd cold month of March, and with ains which continued through pril. With such unfavorable weath-r conditions, cane cultivation, fer-lization and the planting of corn nd legumes, were very much off f the usual schedule of field op-rations of a normal season.

The month of May was dry, with rong sunlight and temperatures, ove normal. This was very favora-le for only sugar cane development. nd also definitely good for all of ne delayed field work. Fields were apidly worked and cane fertilized om the middle of April until the nd of May. The final cultivation r "laying-by" of the cane crop was ostly completed in late June.

The July precipitation was exces-ve at all of the test fields, except ne Red river section. There was an verage of 18 days on which rain curred in the other four sections the cane belt. This together with ne excessive amount of rainfall was nfavorable for optimum cane owth.

August and September were considerably drier in the Teche and Western sections than in the Mississippi river and Red river areas; while the month of October was generally warm and extremely wet.

November was the dryest month of the year, while December showed normal rainfall with temperatures above normal. These weather conditions were very favorable for the harvesting and milling of sugar cane, which was practically completed by the end of the year.

Fall Planting of Test Fields

During the period of September 15 through October 20, new sugar cane variety experimental fields were planted at the following locations: Cinclare, Glenwood, Reserve, Meeker, Shirley, Caffery, Billeaud and Youngsville. Nine fields averaging 2.95 acres in size and totaling 26½ acres were planted at the eight locations.

Introductory Varieties

At each of the eight test fields, the following eight new varieties were planted on a small plot basis: C. P. Nos. 47-61, 47-64, 47-91, 47-99, 47-109, 47-126, 47-166 and 47-193.

An additional variety, C. P. 47-191, which is very small in diameter and high in sucrose was planted only at Shirley and Meeker, for the purpose of testing this type of cane in these northern localities of the cane belt.

Harvesting and Testing of Varieties

The twenty-three sugar cane variety test fields were harvested and tested during the period of October 25 to January 4, 1950. All variety plots were harvested in accordance with regular field practices and weighed on plantation scales.

CINCLARE TEST FIELD

Variety	Normal Juice		Purity	Tons Per Acre	Pounds commercially Recoverable Sugar Raw Value	
	Brix	Sucrose			Per Ton	Per Acre
Fall Plant Cane (Mhoon very fine sandy loam)						
C. P. 36-105	17.35	13.52	77.93	34.90	181.82	6346
C. P. 36-13	16.38	12.52	76.43	37.16	166.02	6169
C. P. 45-184	16.28	12.52	76.90	36.22	166.02	6013
C. P. 44-101	15.99	12.25	76.61	35.53	161.75	5747
C. P. 29-320	16.57	13.15	79.36	30.30	176.00	5333
C. P. 43-3	16.28	12.34	75.80	32.42	163.14	5289
C. P. 43-9	14.53	11.21	77.15	35.87	145.65	5225
C. P. 44-153	15.99	12.08	75.55	32.61	159.08	5188
C. P. 34-120	16.96	13.31	78.48	28.24	178.56	5043
C. P. 44-155*	15.41	11.64	75.54	30.04	159.08	4573
Fall Plant Cane (Bowdre clay)						
C. P. 44-153	16.28	11.92	73.22	30.55	156.60	4784
C. P. 43-3	17.05	12.35	72.43	29.11	163.30	4754
C. P. 44-101	15.99	11.87	74.23	30.44	155.82	4743
C. P. 36-105	17.83	14.04	78.74	24.15	190.14	4592
C. P. 43-47	16.38	12.52	76.43	27.19	166.02	4514
C. P. 33-224	15.79	12.13	76.82	25.58	159.88	4090
C. P. 44-155	16.67	11.78	70.67	25.86	154.40	3993
C. P. 43-9	15.41	12.04	78.13	24.88	158.44	3942
C. P. 34-120	16.96	13.23	78.01	20.64	177.28	3659
C. P. 36-183	16.67	12.44	74.63	22.04	164.74	3631
First Stubble (Mhoon very fine sandy loam)						
C. P. 36-105	16.86	13.35	79.18	23.66	179.20	4240
C. P. 43-3	15.79	12.03	76.19	24.50	158.28	3878
C. P. 29-120	16.38	13.03	79.55	22.25	174.08	3873
C. P. 36-13	15.89	12.62	79.42	22.75	167.62	3813
C. P. 34-120	15.70	12.30	78.34	23.30	162.50	3786
C. P. 44-101**	14.45	10.64	73.63	27.00	136.12	3675
C. P. 43-47	15.99	12.28	76.80	22.45	162.20	3641
C. P. 43-9	14.83	11.25	75.86	24.55	146.25	3590
C. P. 29-320	16.57	13.18	79.54	19.19	176.48	3387
C. P. 37-5	15.60	11.96	76.67	21.38	157.20	3361
C. P. 44-155**	14.05	10.25	72.95	22.35	129.35	2891
First Stubble (Sharkey clay)						
C. P. 33-224	14.53	10.30	70.89	28.58	130.20	3721
C. P. 36-105	16.47	12.25	74.38	20.83	161.75	3369
C. P. 43-3	15.31	11.03	72.04	22.87	142.85	3267
C. P. 37-5	14.44	10.62	73.55	23.70	135.76	3218
C. P. 43-9	14.63	10.87	74.30	20.94	140.09	2934
C. P. 43-47	14.53	10.48	72.13	20.41	133.36	2722
C. P. 36-13	14.73	10.92	74.13	19.11	141.04	2696
C. P. 34-120	15.60	11.55	74.04	17.19	150.85	2593

* Very badly lodged; unsatisfactory for machine cutting.

CINCLARE TEST FIELD

Variety	Normal Juice		Purity	Tons Per Acre	Pounds commercially Recoverable Sugar, Raw Value	
	Brix	Sucrose			Per Ton	Per Acre
Second Stubble (Mhoon very fine sandy loam)						
C. P. 43-47	16.67	13.45	80.68	23.08	180.75	4172
C. P. 29-120	17.05	13.49	79.12	21.32	181.35	3866
C. P. 43-28	15.70	12.22	77.83	21.50	161.30	3468
C. P. 36-105	16.47	13.71	83.24	17.84	184.86	3298
C. P. 43-33*	14.95	10.73	71.77	21.46	137.71	2955
C. P. 36-203	17.15	13.65	79.59	15.64	183.90	2876
C. P. 29-320	16.09	12.78	79.43	16.21	170.10	2757
C. P. 36-13	16.09	12.51	77.75	16.61	165.86	2755
C. P. 44-101*	16.55	12.65	76.44	16.21	168.10	2725
C. P. 44-155*	14.95	10.91	72.98	18.74	140.87	2640
C. P. 37-5	16.09	12.78	79.43	13.22	170.10	2249

	Time of Planting	Time of Harvesting
Fall Plant Cane:	Sept. 23, 1948.	Nov. 22, 1949.
First Stubble:	Sept. 25, 1947.	11/25/48 & 10/26/49.
Second Stubble:	Sept. 20, 1946.	11/20/47; 10/27/48 and 10/25/49.

All varieties loaded into railroad cars and weighed at Cinclare Factory. Analysis of juices from crusher juice samples from the big mill at Cinclare Central Factory.

* Analyses: Small mill samples (10 stalks). Trash deductions: 7.3%.

GLENWOOD TEST FIELD

Variety	Normal Juice		Purity	Tons Per Acre	Pounds commercially Recoverable Sugar, Raw Value	
	Brix	Sucrose			Per Ton	Per Acre
Fall Plant Cane (Mhoon very fine sandy loam)						
C. P. 45-184*	15.56	11.88	76.35	30.63	155.98	4778
C. P. 36-105*	15.98	12.18	76.22	28.56	160.68	4589
C. P. 34-120*	16.34	12.69	77.66	26.53	168.74	4477
C. P. 43-9*	14.99	11.14	74.32	28.54	144.54	4125
C. P. 45-122*	15.00	11.01	73.40	27.86	142.55	3971
C. P. 43-3*	15.05	10.67	70.90	28.09	136.66	3839
C. P. 44-155**	15.71	12.10	77.02	23.90	159.40	3810
C. P. 43-47*	14.85	11.09	74.68	26.48	143.75	3807
C. P. 29-120**	15.03	11.42	75.98	24.54	148.90	3654
C. P. 36-13**	15.23	11.63	76.36	23.70	152.08	3604
C. P. 44-153*	14.81	10.47	70.70	26.00	133.19	3463
C. P. 44-101**	15.05	11.20	74.42	23.10	145.50	3361

GLENWOOD TEST FIELD

Variety	Normal Juice		Purity	Tons Per Acre	Pounds commercially Recoverable Sugar Raw Value	
	Brix	Sucrose			Per Ton	Per Acre
First Stubble (Mhoon silty clay loam)						
C. P. 43-9	14.69	11.31	76.99	24.88	147.16	3661
C. P. 36-13**	14.90	11.23	75.37	24.75	145.95	3612
C. P. 34-120	14.81	11.09	74.88	24.56	143.75	3531
C. P. 37-5**	14.43	11.04	76.51	21.24	143.00	3037
C. P. 36-105	15.20	11.55	75.99	19.48	150.85	2939
C. P. 44-155**	14.26	10.26	71.95	22.20	129.52	2875
C. P. 43-3	14.71	10.58	71.92	20.62	135.06	2785
C. P. 43-47	15.60	12.16	77.95	17.13	160.36	2747
C. P. 29-120**	13.35	9.69	72.58	21.47	118.91	2553
C. P. 44-101**	14.26	9.92	69.57	20.32	123.40	2508
Second Stubble (Mhoon silt loam)						
C. P. 43-47	15.74	12.23	77.70	25.93	161.45	4186
C. P. 36-183***	15.11	11.89	78.69	24.40	156.14	3810
C. P. 36-197***	16.35	13.25	31.04	19.69	177.60	3497
C. P. 43-3	13.65	9.90	72.53	27.55	123.00	3389
C. P. 36-105	15.80	11.70	74.05	20.67	153.20	3167
C. P. 43-9	13.92	10.48	75.29	22.85	133.36	3047
C. P. 36-13	15.50	12.24	78.97	18.30	161.60	2957
C. P. 36-19	15.54	11.91	76.64	18.82	156.45	294
C. P. 37-5	15.60	12.14	77.82	16.76	160.04	2682
C. P. 29-120	14.69	11.24	76.51	17.87	146.10	2611
C. P. 34-120	15.05	11.46	76.15	17.00	149.50	2542

* Light borer damage. ** Heavy borer damage. *** Badly lodged.

	Time of Planting	Time of Harvesting
Fall Plant Cane:	Sept. 22, 1948	November 25, 1949.
First Stubble:	Sept. 26, 1947	12/2/48 and 11/2/49.
Second Stubble:	Oct. 3, 1946	11/29/47; 10/27/48 and 11/2/49.

Analyses: Small mill samples (10 stalks) taken from detrashed samples.

RESERVE TEST FIELD

Variety	Normal Juice		Purity	Tons Per Acre	Pounds commercially Recoverable Sugar, Raw Value	
	Brix	Sucrose			Per Ton	Per Acre
Fall Plant Cane (Mhoon very fine sandy loam)						
C. P. 44-101	17.43	13.33	76.48	29.87	178.88	5343
C. P. 43-9	16.95	12.45	73.45	32.10	164.90	5293
C. P. 45-137	16.95	13.35	78.76	29.50	179.20	5286
C. P. 44-153	16.08	11.88	73.88	33.82	155.98	5275
C. P. 45-122	16.47	11.88	72.13	32.03	155.98	4996
C. P. 36-13	16.47	12.73	77.29	29.47	169.35	4991

RESERVE TEST FIELD

Variety	Normal Juice		Purity	Tons Per Acre	Pounds commercially Recoverable Sugar Raw Value	
	Brix	Sucrose			Per Ton	Per Acre
Fall Plant Cane (Mhoon very fine sandy loam)						
C. P. 43-47	16.95	12.78	75.40	28.67	170.10	4877
C. P. 36-105	16.37	12.17	74.34	30.21	160.52	4849
C. P. 34-120	16.76	12.65	75.48	28.03	168.10	4712
C. P. 45-125	16.57	13.43	81.05	25.76	180.45	4648
C. P. 43-3	17.14	12.65	73.80	24.95	168.10	4194
C. P. 45-155	15.70	11.69	74.46	22.03	153.04	3372
C. P. 44-155	16.08	11.69	72.70	21.66	153.04	3315
C. P. 45-73	16.95	13.43	79.23	16.21	180.45	2975
C. P. 45-184	17.05	12.94	75.89	-----	172.64	----
First Stubble (Mhoon very fine sandy loam)						
C. P. 44-101	15.25	11.64	76.33	27.96	152.24	4257
C. P. 44-155	14.97	11.26	75.22	25.58	146.40	3745
C. P. 43-47	15.70	12.05	76.75	23.06	158.60	3657
C. P. 43-9	14.88	11.62	78.09	22.57	151.92	3429
C. P. 44-153	14.42	10.30	71.43	25.47	130.20	3316
C. P. 36-105	16.25	12.94	79.63	18.08	172.64	3121
C. P. 36-13	16.07	13.13	81.71	17.46	175.68	3067
C. P. 37-5	15.11	11.97	79.22	19.08	157.35	3002
C. P. 43-3	15.61	11.92	76.36	18.85	156.60	2952
C. P. 34-120	14.79	11.46	77.48	17.56	149.50	2625
C. P. 29-120	16.07	13.06	81.27	13.01	174.56	2271
Second Stubble (Mhoon silty clay loam)						
C. P. 43-33*	14.52	11.09	76.38	21.69	143.75	3118
C. P. 36-105	15.79	12.63	79.99	16.28	167.78	2732
C. P. 36-13	14.97	11.75	78.49	16.75	153.95	2579
C. P. 34-120	14.42	11.09	76.91	17.90	143.75	2573
C. P. 43-47*	14.52	11.13	76.65	17.09	144.38	2468
C. P. 43-3*	13.56	10.59	78.10	17.49	135.23	2365
C. P. 37-5	14.47	11.36	78.51	12.84	147.96	1900
C. P. 36-183	13.15	9.94	75.59	14.64	123.80	1812
C. P. 29-120	15.93	12.97	81.42	9.50	173.12	1645
C. P. 36-19*	13.24	9.78	73.87	3.39	120.70	409
C. P. 43-9*	14.06	11.03	78.45	15.78	142.85	2254

* (Mhoon very fine sandy loam).

	Time of Planting	Time of Harvesting
Fall Plant Cane:	Sept. 27, 1948	Dec. 5, 1949.
First Stubble:	Oct. 1, 1947	12/6/48 and 11/3/49.
Second Stubble:	Oct. 4, 1946	12/2/47; 11/4/48 and 11/3/49.

Analyses: Small mill samples (10 stalks) taken at random from field heaps

MEEKER TEST FIELD

Variety	Normal Juice		Purity	Tons Per Acre	Pounds commercially Recoverable Sugar, Raw Value	
	Brix	Sucrose			Per Ton	Per Acre
Fall Plant Cane (Yahola loamy very fine sand)						
C. P. 44-101	17.18	12.93	75.26	26.73	172.48	4610
C. P. 45-155	16.33	11.83	72.44	26.74	155.18	4150
C. P. 36-13	16.52	12.41	75.12	25.24	164.26	4146
C. P. 45-184	17.18	12.97	75.49	23.69	173.12	4102
C. P. 29-320	17.65	13.05	73.94	23.36	174.40	4074
C. P. 45-137	17.93	12.77	71.22	22.93	169.95	3897
C. P. 45-119	17.84	14.05	78.76	19.79	190.30	3766
C. P. 36-105	17.74	13.17	74.24	20.62	176.32	3636
C. P. 43-9	15.76	10.92	69.29	25.40	141.04	3582
C. P. 44-155	17.18	12.91	75.15	20.69	172.16	3562
C. P. 43-3	16.80	12.03	71.61	21.00	158.28	3324
C. P. 34-120	17.46	13.50	77.32	18.10	181.50	3285
C. P. 44-153	15.76	10.07	63.90	25.82	126.19	3258
C. P. 43-33	18.21	13.80	75.78	16.66	186.30	3104
C. P. 36-19	17.84	13.23	74.16	17.04	177.28	3021
C. P. 45-125	15.10	11.17	73.97	14.99	145.02	2174
C. P. 46-51	15.38	10.17	66.12	-----	127.96	----
First Stubble (Yahola loamy very fine sand)						
C. P. 43-3	16.23	12.08	74.43	36.01	159.08	5729
C. P. 44-101	17.07	13.25	77.62	29.11	177.60	5170
C. P. 36-105	17.25	13.20	76.52	27.29	176.80	4823
C. P. 44-155	16.32	12.59	77.14	24.32	167.14	4065
C. P. 36-13	16.60	12.99	78.25	22.34	173.44	3875
C. P. 34-120	16.14	12.83	79.49	22.10	170.88	3776
C. P. 29-320	16.69	12.81	76.75	21.27	170.56	3628
C. P. 43-47	17.07	13.66	80.02	20.45	184.06	3142
C. P. 36-19	16.60	12.91	77.77	15.95	172.16	2746
Second Stubble (Yahola loamy very fine sand)						
C. P. 36-183*	15.21	11.05	72.72	23.33	143.30	3343
C. P. 43-33	16.60	12.43	74.88	18.42	164.58	3032
C. P. 36-105	16.60	12.49	75.24	17.72	165.54	2933
C. P. 36-13	15.58	12.11	77.73	16.36	159.56	2610
C. P. 29-320	15.77	11.96	75.84	11.75	157.20	1847
C. P. 34-120	14.38	10.69	74.34	13.47	137.02	1846
C. P. 36-19	14.93	10.93	73.21	9.97	141.21	1408
C. P. 44-101	13.80	9.96	72.17	-----	124.20	----
C. P. 44-155	15.36	11.72	76.30	-----	153.50	----

* Very crooked and lodged.

	Time of Planting	Time of Harvesting
Fall Plant Cane:	Sept. 29, 1948	Dec. 2. 1949
First Stubble:	Oct. 8, 1947	12/3/48 and 10/25/49.
Second Stubble:	Oct. 8, 1946	12/25/47; 10/25/48 and 10/25/49.

Analyses: Meeker Sugar Cooperative, Inc., small mill samples (10 stalks) from detrashed samples.

SHIRLEY TEST FIELD

Variety	Normal Juice		Purity	Tons Per Acre	Pounds commercially Recoverable Sugar Raw Value	
	Brix	Sucrose			Per Ton	Per Acre
Fall Plant Cane (Yahola very fine sandy loam)						
C. P. 45-125	15.16	11.13	73.42	33.72	144.38	4869
C. P. 44-155	16.01	11.98	74.83	29.91	157.50	4711
C. P. 43-9	15.25	11.03	72.33	32.78	142.85	4683
C. P. 36-105	16.96	12.71	74.94	27.62	169.05	4669
C. P. 44-101	15.63	11.45	73.26	29.84	149.35	4457
C. P. 43-3	14.97	9.97	66.60	32.03	124.40	3985
C. P. 29-320	17.06	13.15	77.08	22.50	176.00	3960
C. P. 43-47	16.77	11.40	67.98	25.69	148.60	3818
C. P. 36-13	15.73	12.28	78.07	23.53	162.20	3817
C. P. 45-184	15.35	11.13	72.51	26.02	144.38	4869
C. P. 34-120	16.39	12.55	76.57	19.95	166.50	3322
C. P. 44-154	13.45	8.29	61.64	-----	93.73	----
First Stubble (Yahola very fine sandy loam)						
C. P. 36-105	17.62	13.65	77.47	29.73	183.90	5467
C. P. 44-101	15.63	11.35	72.62	32.40	147.80	4789
C. P. 43-3	17.06	12.61	73.92	28.53	167.46	4778
C. P. 43-9	16.49	12.51	75.86	27.48	165.86	4558
C. P. 34-120	17.72	13.90	78.44	24.00	187.90	4510
C. P. 29-320	18.29	14.73	80.54	21.81	201.31	4391
C. P. 44-155	15.16	10.74	70.84	28.56	137.88	3938
C. P. 43-47	17.24	13.49	78.25	20.45	181.35	3709
C. P. 36-13	17.15	13.74	80.12	15.24	185.34	2825
Second Stubble (Yahola very fine sandy loam)						
C. P. 43-47	16.49	12.44	75.44	29.99	164.74	4941
C. P. 36-105	16.68	12.33	73.92	27.75	162.98	4523
C. P. 43-33	17.53	13.31	75.93	25.22	178.56	4503
C. P. 29-320	17.24	13.60	78.89	23.27	183.10	4261
C. P. 34-120	15.63	11.48	73.45	27.47	149.80	4115
C. P. 43-9	14.21	9.25	65.10	34.43	110.40	3801
C. P. 43-3	16.11	11.75	72.94	24.09	153.95	3709
C. P. 36-13	16.30	12.59	77.24	18.17	167.14	3037

	Time of Planting	Time of Harvesting
Fall Plant Cane:	Sept. 30, 1948	Nov. 9, 1949.
First Stubble:	Oct. 9, 1947	11/9/48 and 11/9/49.
Second Stubble:	Sept. 23, 1946	11/25/47;/11/8/48 and 11/8/49.

Analyses: Meeker Sugar Cooperative Inc., small mill samples (10 stalks).

CAFFERY TEST FIELD

Variety	Normal Juice		Purity	Tons Per Acre	Pounds commercially Recoverable Sugar, Raw Value	
	Brix	Sucrose			Per Ton	Per Acre
Fall Plant Cane (Baldwin silt loam)[1]						
C. P. 36-13**	16.58	13.37	80.64	20.70	179.52	3716
C. P. 36-105*	15.85	12.31	77.67	21.80	162.66	3546
C. P. 43-3*	16.68	13.17	78.96	20.00	176.32	3526
C. P. 44-155***	18.15	14.91	82.15	16.40	204.26	3350
C. P. 43-47*	15.85	12.44	78.49	19.58	164.74	3226
C. P. 44-153	16.31	12.22	74.92	19.02	161.30	3068
F. 31-762***	15.29	12.02	78.61	18.00	158.12	2846
C P. 44-101***	16.12	12.93	80.21	15.34	172.48	2646
C. P. 43-9*	14.93	11.05	74.01	18.16	143.15	2600
C. P. 45-184*	16.95	13.55	79.94	12.96	182.30	2363
Co. 290***	13.73	10.14	73.85	16.67	127.42	2124
First Stubble (Baldwin very fine sandy loam)[1]						
C. P. 34-120*	17.97	15.16	84.36	29.97	208.32	6243
C. P. 43-47*	18.06	14.73	81.56	30.39	201.31	6118
C. P. 44-101**	18.15	14.96	82.42	23.88	205.06	4897
Co. 290**	16.49	13.01	78.90	28.17	173.76	4895
C. P. 44-155**	17.69	14.80	83.66	23.45	202.50	4749
C. P. 43-9*	17.41	14.25	81.85	24.28	193.55	4699
F. 31-762**	16.49	13.32	80.78	25.09	178.72	4484
C. P. 36-183*	17.14	13.61	79.40	24.18	183.26	4431
C. P. 36-105*	16.21	12.51	77.17	26.05	165.86	4321
C. P. 43-3*	17.78	14.11	79.36	21.85	191.26	4179
C. P. 36-13**	18.15	14.99	82.59	19.32	205.54	3971
C. P. 44-153**	15.20	10.28	67.63	26.76	129.86	3475
C. P. 37-5**	17.23	14.34	83.23	15.95	195.04	3111

[1] Second generation airplane dusting: four applications at weekly intervals, at the rate of 10 pounds Cryolite per acre. The fall plant cane varieties were more severely damaged by cane borers than the first stubble varieties, on account of being closer to borer invested corn fields.

* Light borer damage.

** Medium borer damage.

*** Severe borer damage.

	Time of Planting	Time of Harvesting
Fall Plant Cane:	Oct. 6, 1948	Jan. 3, 1950.
First Stubble:	Oct. 6, 1947	1/14/49 and 1/2/50.

Varieties in tassel stage:

Plant Cane: C. P. Nos. 45-125, 45-154, 45-184, 46-37, 46-40, 46-51, 36-13 and 36-179.
First Stubble: C. P. Nos. 36-13, 34-120, 36-179, 43-49, 44-153 and 45-184.
Analyses: Small mill samples (10 stalks).

BILLEAUD TEST FIELD

Variety	Normal Juice		Purity	Tons Per Acre	Pounds commercially Recoverable Sugar, Raw Value	
	Brix	Sucrose			Per Ton	Per Acre
Fall Plant Cane (Olivier silt loam)						
C. P. 44-101	17.34	14.64	84.43	29.82	199.84	5959
Co. 290	16.28	12.89	79.18	34.00	171.84	5843
C. P. 33-310	18.51	15.70	84.82	25.32	217.20	5500
C. P. 45-184	16.76	13.52	80.67	30.17	181.82	5486
C. P. 36-13	16.66	13.50	81.03	29.97	181.50	5440
C. P. 43-3	17.83	15.08	84.58	25.74	206.98	5328
C. P. 36-183	16.37	13.11	80.09	30.11	175.36	5280
C. P. 36-105	16.47	13.11	79.60	29.85	175.36	5235
C. P. 44-155	18.31	15.83	86.46	22.38	219.31	4909
F. 31-762	16.96	14.08	83.02	25.10	190.78	4789
C. P. 44-153	16.66	12.40	74.43	27.47	164.10	4509
C. P. 43-9	16.18	12.66	78.24	26.40	168.26	4442
C. P. 29-116	15.50	11.38	73.42	29.92	148.28	4437
First Stubble (Lintonia silt loam)						
C. P. 44-101	17.39	13.58	78.09	30.95	182.78	5657
C. P. 43-3	16.61	12.11	72.91	34.34	159.56	5479
C. P. 36-105	16.32	11.63	71.26	32.44	152.08	4934
C. P. 44-153	16.32	11.35	69.55	32.68	147.80	4830
C. P. 33-310	16.03	11.36	70.87	31.28	147.96	4628
C. P. 36-13	15.64	11.76	75.19	29.63	154.10	4566
C. P. 43-47	16.32	12.08	74.02	28.13	159.08	4475
Co. 290	13.69	9.32	68.08	38.91	111.70	4346
C. P. 44-155	16.03	12.11	75.55	25.96	159.56	4142
C. P. 43-9	14.08	9.64	68.47	34.58	117.96	4079
C. P. 29-116	14.27	9.31	65.24	30.79	111.50	3433

Note: All analyses from crusher juice samples, Billeaud Sugar Factory and laboratory

	Time of Planting	Time of Harvesting
Fall Plant Cane:	Oct. 4, 1948	Dec. 10, 1949.
First Stubble:	Sept. 15, 1947	11/27/48 and 11/9/49.

YOUNGSVILLE TEST FIELD

Variety	Normal Juice		Purity	Tons Per Acre	Pounds commercially Recoverable Sugar, Raw Value	
	Brix	Sucrose			Per Ton	Per Acre
Fall Plant Cane (Richland-Olivier silt loams)						
C. P. 43-47	17.05	13.78	80.82	24.92	185.98	4635
C. P. 44-101	17.14	13.66	79.70	24.40	184.06	4491
C. P. 44-153	16.57	12.03	72.60	25.74	158.28	4074
C. P. 36-105	17.14	13.46	78.53	22.43	180.90	4058
C. P. 44-155*	16.76	13.44	80.19	21.49	180.60	3881
C. P. 45-155	15.71	11.72	74.60	24.55	153.50	3768
C. P. 29-116*	14.38	9.86	68.57	30.00	122.24	3667

Laboratory facilities for milling samples and juice analyses of varieties were provided by the test field cooperators. The final results of each of the eight test fields are presented in tabulated form in this report. The sugar calculations are based on the table of the Production and Marketing Administration (Sugar Branch), "Commercially Recoverable Sugar Determination for Sugarcane" (1949 Revision).

Evaluation of Varieties (1949 Results)

(Averages of plant cane and stubble)

(1) Red River Section: Meeker & Shirley (Yahola very fine & Yahola very fine sandy loam): C. P. 36-105 was the outstanding field variety. C. P. 44-101 ranked first at Meeker and third at Shirley. C. P. 44-155 had a higher field yield and slightly outranked C. P. 29-320.

(2) Upper Mississippi River Section—Cinclare (Mhoon very fine sandy loam); (1) C. P. 36-105; (2) C. P. 43-3; (3) C. P. 43-9; (4) C. P. 36-13; (5) C. P. 44-101 and (6) C. P. 29-320.

The two unreleased varieties, C. P. Nos. 43-3 and 43-9 are lower in sucrose than any of the main commercial canes.

Cinclaire "black land" (Bowdre clay and Sharkey clay): (1) C. P. 43-3; (2) C. P. 36-105; (3) C. P. 33-224; and (4) C. P. 43-47. C. P. 36-105 was the highest in sucrose and the most profitable cane for these soil types.

In the plant cane tests C. P. 44-101 outranked C. P. 36-105, but was considerably lower from a sucrose standpoint.

Other varieties like C. P. 33-224, 43-3, 43-47, 43-153 gave higher tonnages but much lower sucrose tests than C. P. 36-105.

(3) Lower Mississippi River Section—Glenwood (Mhoon very fine sandy loam, Mhoon silty clay

YOUNGSVILLE TEST FIELD

Variety	Normal Juice		Purity	Tons Per Acre	Pounds commercially Recoverable Sugar, Raw Value	
	Brix	Sucrose			Per Ton	Per Acre
Fall Plant Cane (Richland-Olivier silt loams)						
C. P. 43-32	15.43	11.41	73.95	23.79	148.75	3539
C. P. 45-184	16.29	12.41	76.18	18.86	164.26	3098
C. P. 43-28*	15.43	11.74	76.09	20.11	153.80	3093
F. 31-762	17.90	13.47	75.25	16.61	181.05	3007
C. P. 43-9	16.38	12.85	78.45	18.85	171.20	3227
C. P. 43-3	15.24	10.52	69.03	22.02	134.04	2952
Co. 290*	14.19	8.79	61.95	23.41	102.03	2389
C. P. 46-51	16.00	10.97	68.56	20.55	141.89	4011
C. P. 36-13	17.33	14.18	81.82	20.85	192.38	
First Stubble (Richland-Calhoun silt loams)						
C. P. 44-101	18.00	14.72	81.78	27.52	201.14	5535
C. P. 43-47	17.71	14.69	82.95	26.16	200.64	5249
C. P. 44-155*	18.29	15.35	83.93	21.32	211.45	4508
C. P. 43-3	18.00	14.56	80.49	22.62	198.56	4491
C. P. 44-153	17.33	13.07	75.42	25.15	174.72	4394
C. P. 43-32	16.67	13.26	79.54	24.00	177.76	4266
C. P. 36-105	17.14	13.54	79.00	21.40	182.14	3898
C. P. 43-28*	15.81	11.91	75.33	24.45	156.45	3825
Co. 290	16.38	12.70	77.53	21.04	168.90	3554
C. P. 29-116	16.86	11.70	69.40	21.88	153.20	3352
C. P. 36-13	17.71	15.30	86.39	15.43	210.60	3250
C. P. 43-9	15.90	12.01	75.53	19.27	157.96	3044
C. P. 43-49*	15.14	10.66	70.41	22.30	136.42	3042
C. P. 36-111*	15.24	10.02	65.75	24.27	125.34	3042
C. P. 36-183*	15.81	11.68	73.88	19.57	152.88	2992
C. P. 33-310	17.05	13.11	76.89	15.00	175.36	2630
C. P. 45-184	18.00	14.37	78.83	-----	195.52	----

* Badly lodged.

Analyses: Youngsville Sugar Factory small mill laboratory, from samples of 25 stalks of each variety.

	Time of Planting	Time of Harvesting
Fall Plant Cane:	Sept. 20, 1948	Nov. 18, 1949
First Stubble:	Sept. 29, 1947	11/11/48 and 11/17/49.

)am & Mhoon silt loam): (1) C. P. 4-120; (2) C. P. 43-9; (3) C. P. 6-105; (4) C. P. 36-13 and (5) C. '. 44-155.

The poor performances of C. P. Nos. 29-120 and 44-101 are mainly ttributable to severe cane borer amages in these two borer susceptible varieties.

Reserve (Mhoon very fine sandy)am and Mhoon silty clay loam): 1) C. P. 44-101; (2) C. P. 43-9; 3) C. P. 43-47; (4) C. P. 36-13 nd (5) C. P. 36-105. C. P. 36-13 'as the highest in sugar per ton ield, while C. P. 43-9 was the low-st, ranked second at Glenwood and 'eserve and third at Cinclare.

(4) Teche Section — Caffery Baldwin silt loam and Baldwin ery fine sandy loam): (1) C.P. 43-7; (2) C.P. 44-155; (3) C.P. 36-05; (4) C.P. 36-13 and (5) C.P. 3-3. C.P. 44-101 and F. 31-762 anked sixth and seventh respective-'. Co. 290 ranked ninth.

(5) Western Section — Billeaud Olivier silt loam and Lintonia silt)am): (1) C.P. 44-101; (2) C.P. 3-3; (3) Co. 290; (4) C.P. 36-105; 5) C.P. 33-310; (6) C. P. 36-105 nd (7) C.P. 36-13.

C. P. 44-155 which ranked eighth, was second highest from a sucrose standpoint and lowest in tonnage.

Youngsville (Richland-Olivier silt loams and Richland-Calhoun silt loams): (1) C.P. 44-101; (2) C.P. 43-47; (3) C.P. 44-153; (4) C.P. 44-155; (5) C.P. 36-105 and (6) C.P. 43-3.

Co. 290 ranked third from a tonnage standpoint, and was lowest in sucrose test as plant cane on account of a badly lodged condition. C.P. 29-116 was also badly lodged as plant cane and low from a sucrose standpoint.

Promising New Varieties

C.P. 33-224 continues to make a favorable showing on the Cinclaire "black land" (Bowdre* clay and Sharkey* clay soil types), and on Iberia silt loam and Patoutville* silt loam in some parts of Iberia and Vermilion parishes. This unreleased variety is being used by one cane grower as the main commercial cane and on a field trial basis by numerous growers.

F. 31-762 outranked Co. 290 in the Teche area. Results showed higher sugar per acre yields.

RAINFALL—SEASON OF 1949

Location	January		February		March		April		May		June	
	days	inches	days	inches	days	inches	days	inches	days	inches	days	inches
nclare*	12	4.08	9	3.11	15	10.07	14	5.77	5	2.03	9	2.66
enwood	10	3.10	11	3.16	11	10.39	10	11.03	3	3.45	11	3.97
serve*	12	3.28	13	2.81	10	9.78	9	8.49	5	0.91	11	8.61
ffery	3	2.55	4	2.70	5	9.30	7	6.25	4	3.05	4	9.35
eneyville*	14	8.23	14	4.69	11	9.53	15	2.12	6	1.06	11	5.92
eeker	5	8.16	4	3.10	6	11.26	7	13.47	1	1.68	5	2.49
lleaud	7	3.67	7	4.46	7	10.38	7	3.70	6	3.83	8	4.30
ungsville	6	2.35	6	5.15	6	7.57	8	3.26	4	2.35	6	3.73

Location	July		August		September		October		November		December		TOTAL	
	days	inches	days	inches	days	inches	days	inches	days	inches	days	inches	days	inches
nclare*	20	11.10	13	5.05	13	5.21	16	6.55	1	0.24	8	3.61	135	59.48
enwood	16	10.31	11	4.78	11	7.37	8	4.57	2	0.34	5	4.17	199	66.64
serve*	20	10.05	10	6.28	10	6.72	10	3.77	1	0.12	10	4.95	121	65.77
ffery	14	8.85	4	2.85	3	3.75	6	5.35	1	0.50	6	4.37	61	58.87
eneyville*	14	7.09	7	2.00	6	0.97	11	8.92	1	0.04	11	5.76	121	56.33
eeker	(No R	ecord)	(No R	ecord)			4	2.02	1	0.16	10	5.37		
lleaud	17	15.90	7	3.99	4	1.79	9	6.06	1	0.41	5	4.24	85	62.34
ungsville	18	11.02	5	4.02	3	1.37	9	10.52	0	0.00	6	3.80	77	55.14

Climatological Data Louisiana, U. S. Department of Commerce Weather Bureau.
her Locations: from cooperators' rainfall records.
ys: Number of days rain occurred.
s: Inches of rain.

C.P. 43-3 gave best response on Cinclaire light and heavy soils, the Teche and Western sections.

C.P. 43-9 and C.P. 45-184 showed best results in the Red River, Upper and Lower Mississippi River sections.

C.P. 43-33 made a favorable showing as second stubble at Reserve, Meeker and Shirley, but was very poor in one plant cane test. This variety seems to be about in the same class with C.P. 36-19.

C.P. 43-47 made a good showing in the Upper and Lower Mississippi River, Teche and Western sections.

Two new varieties, C.P. Nos. 44-101 and 44-155 were released for commercial field planting in the fall of 1949. The test field results indicate that in a total of seventeen tests of the five representative sections of the sugar cane belt, C.P. 44-101 outranked C.P. 36-105 eleven times; while C.P. 36-105 surpassed C.P. 44-155 thirteen times.

Acknowledgements

The data and results presented in this 1949 report w obtained with the splendid interest and cooperation of t field cooperators' and their personnel.

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S. A. Lytle, Soil Scientist, U. S. D. A. Bureau of Pla Industry, Division of Soil Survey, L. S. U. Department Agronomy. Complete classification of soil types of t test fields.

Claude B. Gouaux, Jr.: Assisting with test field wo during the planting and harvesting season.

[1] Seed cane grown at the L. S. U. Sugar Experime Station by E. C. Simon and F. W. Berthelot, Jr.

* S. A. Lytle, Soil Scientist, U. S. D. A. Bureau of Pla Industry, Division of Soil Survey.

FREEZING AND BELOW 32 DEGREES FAHRENHEIT TEMPERATURES—1949

Date	Cheneyville*	Cinclare*	Napoleonville**	Reserve*	Franklin*	Lafayette*
January 1	27	28	27	29	31	29
January 2	28	--	--	--	--	--
January 7	32	--	--	--	--	--
January 20	32	--	--	--	--	--
January 29	30	31	--	--	30	28
January 30	23	25	28	28	27	24
January 31	21	23	24	25	24	23
February 1	19	26	27	25	29	28
February 2	23	--	--	29	--	--
February 3	30	--	--	--	--	--
		(11/18/) 32				
November 22	31	31	31	--	--	31
November 23	--	32	--	--	--	--
December 16	--	28	29	32	31	28
December 23	26	29	32	32	--	29
December 24	26	28	28	--	31	28
December 25	26	--	--	--	--	--
December 28	30	--	--	--	--	--
December 29	23	--	--	--	--	--
December 30	21	--	--	--	--	--

* Climatological Data Louisiana, U. S. Department of Commerce Weather Bureau.
** Napoleonville: Elm Hall Plantation, Godchaux Sugars, Inc.

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RESULTS OF SUGARCANE VARIETY TESTS IN LOUISIANA DURING 1949

By George Arceneaux, Principal Agronomist, Leo P. Hebert, Associate Agronomist, and Rouby J. Matherne, Assistant Agronomist, Division of Sugar Plant Investigations, Bureau of Plant Industry, Soils, and Agricultural Engineering, Agricultural Research Administration, United States Department of Agriculture[1]

The testing under Louisiana conitions of sugarcane seedlings prouced at the Canal Point Breeding tation and the distribution for comercial culture of varieties of provn merit are carried out under a ooperative arrangement between he Division of Sugar Plant Invesigations, U.S.D.A., the Louisiana tate University, and American Sugar Cane League. The screening out f promising seedlings for more and ore intensive study at experiment tations and the selection of superior nes for plantation tests are obects of a coordinated program of tudies involving periodic exchange f information between research orkers of Louisiana State Univerity and the Division of Sugar Plant nvestigations. The American Sugar ane League conducts a program of eed-cane increase based on inforation supplied by the two research gencies, and closely coordinated ith year-by-year results of field xperiments. This activity which carried out in cooperation with rowers in the important sugarcane arishes has for its purpose the rderly development of a supply of seed material of important experimental varieties under the control of the directing agency concurrently with the progress of field trials. Varieties of superior agricultural value are released for commercial culture by mutual agreement of representatives of the 3 cooperating agencies. When a variety is so released the American Sugar Cane League has the responsibility of making an effective and impartial distribution of the supply of seed material among growers in accordance with terms of the cooperative agreement.

This report summarizes results of sugarcane variety tests conducted by the Division of Sugar Plant Investigations, Bureau of Plant Industry, Soils, and Agricultural Engineering, U.S.D.A., during 1949. Considered of special practical interest are the additional yield data obtained with C.P. 44/101 and 44/155 —two varieties released and distributed for commercial culture in the fall of 1949.

Weather Conditions

Table 1 gives the monthly rainfall as recorded at each of 9 variety-test stations and the normal monthly

Note 1. Monthly rainfall at cooperative variety test stations during 1949.

Station	Monthly rainfall during 1949 (Inches)												
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
eenwood	1.55	2.54	10.85	8.90	1.15	10.26	9.05	4.75	4.92	5.94	0.20	6.45	66.56
celand	2.44	3.33	13.05	8.87	0.42	5.50	10.61	7.29	9.75	5.13	0.10	5.70	72.19
klawn	1.73	4.14	9.35	6.60	2.40	7.90	7.64	6.10	5.45	8.30	0.50	5.90	66.01
ania	4.67	3.63	2.95	4.40	1.05	13.15	9.80	6.10	1.40	5.30	0.80	5.05	58.30
lla	3.33	2.56	10.52	3.82	8.36	4.90	11.65	2.54	1.78	6.77	0.32	3.46	60.01
na*	3.25	4.55	9.55	9.00	1.15	3.84	9.07	5.06	4.29	9.55	0.26	3.05	62.62
n Secour	2.82	2.42	9.65	10.04	2.47	4.95	8.63	8.94	5.18	4.17	0.34	4.49	64.10
velly	2.30	4.27	8.45	8.68	2.13	6.06	8.80	8.97	6.30	2.82	2.00	4.91	65.69
uma	2.38	2.81	14.78	8.48	1.56	4.90	9.02	8.07	5.18	7.98	0.54	7.17	72.87
rmal for Houma	4.02	4.37	3.70	3.89	3.83	6.05	8.56	7.21	5.65	4.07	3.76	4.81	59.92

*Rainfall recorded at nearby Smithfield Plantation. Information for Alma proper not available.

values for Houma. It will be noted that, except at the Albania station, rainfall during March and April was abnormally heavy. For instance the total of 23.26 inches of rain recorded at Houma over the 2-month period was more than 3 times the normal precipitation. Rainfall deficiency over much of the area during May and early June reached drouth proportions at several of the stations. Except for abnormally low rainfall in the Jeanerette-St. Martinville area, moisture conditions over the period from July to early October were fairly normal, and on the whole favorable. However, at some of the stations, notably Oaklawn, frequent rains during late September and early October kept the fields in a water-logged condition thus greatly interfering with planting operations. Dry conditions to a degree virtually unprecedented in Louisiana characterized the 1949 harvest season, in contrast with exceedingly wet conditions prevailing during the 2 preceding years. In addition to permitting orderly and efficient field operations the low rainfall over this period presented unusually favorable ripening conditions.

The last freeze of the 1948-49 winter occurred on January 31, when a minimum of 25° F. was recorded at the Houma Station. Temperatures during spring, summer and early fall were prevailingly above normal. In the absence of critically low temperatures during November and December, sugarcane, in general, continued to improve in sucrose content until the completion of harvest operations. In exposed areas, notably in vicinities of New Iberia, Lafayette, and Meeker, bud-killing frosts during mid December caused minor damage to the crop but resulted in no serious losses.

One of the unusual features of the 1949 crop was the extensive arrowing obtained with many of the commercial varieties. C.P. 36/13, 34 120, 29/116 and 36/105 were amon those showing the highest percen age of stalks producing flowers. more or less similar situation oc curred in 1941 when detailed studie were made on the extent of flowe ing among important commercia varieties and on the effect of flow ering on sugar accumulation (6 (7). It was assumed at that tim that the onset of flower developmer had probably been touched off b abnormally high temperatures du ing October; experience during 194 when somewhat higher temperature during October were followed by eve earlier and more widespread arrow ing supports this assumption. But should be emphasized that the oc currence of arrowing as see in 1941 and again in 1949 wa due more to a change in th kind of sugarcane under cultiva tion than to the unusual weathe conditions prevailing. Varieties c sugarcane now grown in Louisian are complex hybrids derived in pa from early flavoring form of *Sa charum* of Temperate Zone origi In fact many of the seedlings i experimental plantings flower reg ularly at the Houma Station unde normal weather conditions.

Yields of cane per acre in exper mental as well as commercial plan ings were disappointingly low, ran ing from 3 to 4 tons per acre belo early-season estimates. It is believe that the previously mentioned unfa vorable extremes in moisture co ditions experienced from time time during the growing season a counted largely for this yield def ciency. Abnormally heavy damag from stalk borers no doubt tende to lower field tonnages still furthe and to impair the quality of the mi cane, although it should be pointe out that a better-than-average r covery of sugar per ton of cane wa obtained from the 1949 crop as a r sult of favorable ripening conditio during fall months and the absen

f destructive freezes.

Experimental Technique

Essential features of the system sed in measuring comparative va- ietal yields of cane and sugar have een discussed in previous publica- ions (2) (3) (4) (8). Field trials are ıade from year to year at 9 stations resenting a range of growing con- itions considered reasonably typical f the region. Field plots of 1/40 cre planted in the customary check- r-board arrangement are used. 'lantings in each test ordinarily onsist of either two or four plots f each variety, the actual number epending on the available seed sup- ly and the estimated importance of ıe variety.

Varietal yields of cane per acre ıown in this report are based on eights of trash-free cane obtained om experimental plots and mea- ıred by means of a movable weigh- ıg unit consisting of a power op- ated grab and lifting device equip- l with a dial scale as described by tokes and Gibbens (12). In cases here it was not found feasible to ave experimental lots of cane hand- ripped prior to weighing, gross eights were corrected for trash con- nt. In such cases due allowance as made for varietal differences as percentage of trash.

At time of harvest a 30-stalk sam- e of cane was taken from each plot the experiment and transported the Houma Station for milling ıd juice analysis. Indicated yields sugar per ton of cane are based ı the Winter-Carp formula and ad- ısted for varietal differences as to ormal juice extraction according to e method described by Arceneaux, rumbhaar and Bisland (9).

From results of statistical analy- s on data summarized in table 2, 3, ıd 4, it is indicated that an average er-all varietal difference of 2.4 to 1 tons of cane per acre, 8 to 10 unds of sugar per ton of cane and 0 to 500 pounds of sugar per acre ay ordinarily be regarded as significant. In cases of comparisons based on over-all averages shown in tables 5, 6, and 7, somewhat higher average differences are required for significance because of lesser numbers of individual observations. Observed differences in average varietal yields are interpreted in the light of underlying experimental errors.

In presenting results obtained in the different series of tests (tables 2, 3, etc.) average yields obtained at individual stations are given. Experience over the past 2 decades has shown that, ordinarily, relatively little importance can be attached to variations in relative varietal performance observed from station to station in any single series of such tests. For a reliable appraisal of locality effect in relation to differences of fundamental importance in varietal performance it is usually necessary to analyze data from tests of the identical varieties repeated over a number of years. Results of such an analysis are given in a recent publication (1). Our discussion of data presented in this report is limited essentially to average results obtained in individual series of tests and no attempt is made to evaluate the significance of current station departures from average trends. Statements on differences in relative varietal performance as effected by locality are based on results of these and similar tests during previous years.

The identification of soils as given in this report is based on field inspection and classification by S. A. Lytle, Soil Scientist of the Division of Soil Survey, U. S. Department of Agriculture. Series designations employed are now recognized in the sugarcane areas of Louisiana and differ partly from designations used in previous publications which were based on an earlier reconnaissance survey by O'Neal and Hurst (11). The Bowdre, Commerce, Mhoon and Iberia are established series; the

Sharkey, Alligator, Baldwin, Patoutville are tentative series.

Tests on Light Soils

The following tabulation taken from tables 2, 3 and 4, given comparative yields of sugar per acre obtained in plant cane, first, and second stubble tests of important released varieties:

Variety	Indicated yield of 96° sugar per acre (pounds)			
	Plant cane	First stubble	Second stubble	Average of 3 crops
Co. 290	4454	3927	1398	3260
C. P. 29/116	4406	3626	2298	3443
C. P. 29/320	3986	3117	1970	3024
C. P. 34/120	4384	3965	1787	3379
C. P. 36/13	4692	4052	1905	3550
C. P. 36/105	4848	4280	2500	3876
C. P. 36/183	4565	4194	2282	3680
C. P. 44/101	5001	5334	----	----
C. P. 44/155	4613	4446	----	----

In agreement with results obtained during 1948, C.P. 36/105 produced substantially more sugar per acre in each of the 3 series of tests than either Co. 290, C.P. 34/120 or C.P. 29/320. Therefore the added prominence accorded 36/105 in commercial plantings during 1948 and 1949 in preference to the latter 3 varieties is considered amply justified. C.P. 36/13 and C.P. 36/183 also surpassed C.P. 34/120 in average yield of sugar per acre but by lesser differences maintained during 1948. C.P. 36/13 and C.P. 36/183 are among the varieties found to be most susceptible to borer injury according to results of studies by Ingram et al. (10) and the unusually heavy infestation of this insect during 1949 may be primarily responsible for the observed drop in relative yields of these 2 varieties.

Of special interest are results obtained with C.P. 44/101 and C.P. 44/155, released for commercial culture in the fall of 1949. C.P. 44/101 again outyielded C.P. 36/105 and other varieties in present commercial culture by substantial margins. It is considered significant that C.P. 44/101, in spite of susceptibility to borer injury (10) and the consequent wide-spread damage actuall suffered was able to maintain suc a yield advantage over less suscep tible varieties under conditions ex isting during 1949.

From an examination of data giv en in above tabulation it will b noted that the yield of sugar pe acre from C.P. 34/120 dropped moc erately from plant cane to firs stubble and decreased very sharpl from first to second stubble. Th trend, to a greater or lesser degre is displayed in yields from all othe varieties included in the 3-crop s ries and reflects the combined e fect of diseases and other factor tending to produce what is commor ly referred to as poor "stubblin qualities". Tests of C.P. 44/101 ex tended over plant cane and firs stubble only, but it is interesting t note that, contrary to the tren maintained in the case of every otl er variety, there was an average in crease in the production of sug per acre from first stubble over th current yield from plant cane. The good stubbling qualities reflect n doubt, among other things, the va riety's resistance to root rot, red r and other diseases.

C.P. 44/155 gave an indicate yield of sugar per acre approximat ly equal to that obtained from C. 36/105 in the average of plant ca and first stubble tests, and averag somewhat higher in indicated yie of sugar per ton of cane. Other goo qualities of C.P. 44/155 are superi milling qualities (Millability fact 1.02) and exceptional resistance inversion of sucrose.

Unreleased Varieties

C.P. 43/47 equaled C.P. 36/105 production of sugar per acre plant cane and first stubble tes (tables 2 and 3) and slightly su passed it in average yield of sug per ton of cane. Among other a vantages of C.P. 43/47 are som what better milling qualities, great resistance to lodging, and superi

adaptability to mechanical harvesting.

Among C.P. varieties recently placed in plantation tests the following have compared favorably with C.P. 36/105 and other varieties of present commercial importance in indicated production of sugar per acre: 43/32, 43/33, 44/92, 44/153, 45/73, 45/119 and 45/184. However, additional tests will have to be made before relative productiveness and suitability of these varieties can be conclusively determined.

Tests on Heavy Soils

Tables 5 and 6 give results of plant cane and stubble variety tests on heavy soils. Tests of plant cane and first stubble were made at the 4 stations where tests on soils of this class are regularly made from year to year. Second stubble tests of this series were made at the Houma Station only, stands at other locations being too poor to justify further cultivation of the experimental plots.

C.P. 44/101, in this series of tests also, gave indicated yields of sugar per acre which were outstanding in comparison with yields obtained from other varieties. It outyielded C.P. 36/105 by nearly 10 percent in plant cane tests and by 79 percent in first stubble tests. It is interesting to note that first stubble yields with C.P. 44/101 (table 6) were substantially higher than yields obtained with the variety in plant cane tests (table 5), thus presenting additional evidence of the variety's superior stubbling qualities.

C.P. 29/116 and C.P. 33/224 approximately equaled C.P. 36/105 in indicated production of sugar per acre in the average of plant cane and first stubble (tables 5 and 6) but were consistently below C.P. 36/105 in indicated yield of sugar per ton of cane. C.P. 34/120 was moderately below C.P. 36/105 in yield of sugar per acre and slightly below C.P. 36/105 in indicated yield of sugar per ton of cane, while Co. 290 averaged significantly below C.P. 36/105 in yields of sugar per acre and per ton of cane. C.P. 45/184, appearing in plant cane tests only (table 5) gave indicated yields of sugar per acre and per ton of cane comparing favorably with yields obtained with C.P. 44/101, but more tests will be needed before the comparative merits of this variety can be definitely determined.

Among other varieties tested C.P. 36/183, 36/197, 43/47 and 44/153, appearing in the first stubble series (table 6), approximately equaled C.P. 36/105 and C.P. 29/116 in production of sugar per acre but proved significantly less productive than C.P. 44/101.

Table 7 gives results of variety tests on areas of shallow muck near Cut Off. Soil conditions and the drainage situation at this station are considered typical of a vast acreage of potentially reclaimable marsh land of southern Louisiana.

C.P. 36/13 again maintained a level of sugar content comparing favorably with that of C.P. 28/19 formerly the standard variety on soils of this class. Among others showing notable promise in the production of cane of acceptable quality under adverse ripening conditions characteristic of muck areas were the recently released varieties C.P. 44/101 and C.P. 44/155. Yields of cane per acre obtained in experiments of this series were, on the whole, exceedingly low due to the combined effects of unfavorable weather conditions and abnormally heavy insect damage previously discussed, therefore observed yields of cane and sugar per acre are not considered highly representative. It is interesting to note however that C.P. 44/101 outyielded all other varieties in indicated production of sugar per acre in the average of plant cane and first stubble tests.

This variety did not appear in second stubble tests.

Summary and Conclusions

In field trials during 1949, C.P. 44/101 produced substantially more sugar per acre than obtained from C.P. 36/105 and other important varieties now extensively cultivated. This significant advantage was maintained in tests on light soils, heavy soils and muck, thus confirming earlier evidence of the variety's productiveness and widespread adaptability. In comparative tests with present commercial varieties over the past 2 years C.P. 44/101 gave relative yields of cane and sugar which did not vary widely from station to station, but it may be of interest to note that this variety's best relative performance was maintained on Albania Plantation. Among other important favorable qualities of C.P. 44/101 are unusually satisfactory resistance to diseases of importance in Louisiana, superior stubbling qualities, good milling qualities (factor 1.02), growth type permitting satisfactory mechanical harvesting, and satisfactory to superior maturing qualities.

C.P. 44/155 has produced indicated yields of sugar per acre consistently below yields obtained from C.P. 44/101 but comparing favorably with yields obtained from C.P. 36/105. Notable qualities of this variety are good milling qualities (factor 1.02), exceptionally good resistance to inversion of sucrose, and relatively high sucrose content. This variety is not expected to prove as valuable or as widely useful as C.P. 44/101, but may prove an advantageous substitute for C.P. 36/13 and possibly other varieties pending the increase of C.P. 44/101. Over the past 2 years, relative yields of cane and sugar obtained from C.P. 44/155 in comparison with yields from other varieties of importance have not varied widely from station to station, but preliminary results of tests on muck soils indicate that it may prove of more lasting valu for cultivation under those condi tions than elsewhere.

In agreement with results durin recent years, relative yields fror Co. 290 and C.P. 34/120 were sub stantially below levels maintained i earlier tests. This was especiall true of second stubble tests in th average of which yields of cane an sugar per acre dropped to unec nomic levels. An analysis of th statistical and practical significanc of such varietal decreases in relativ productiveness and a discussion o probable causes are given in pre vious publications (2) (5). Amon the possible explanations for suc changes in performance are th many gradually changing condition in the cultivated fields and in fiel practices (2. pp. 297-8) (13, p. 15)

Among varieties which have bee in comparative tests over a perio of 10 years or more, C.P. 29/116 ha given the least evidence of decreas in relative productiveness (2). Fo this reason it has been used as standard to measure year by yea declines in the relative productivit of other varieties. Average annu yields of sugar per acre from C.P 36/105 over the past 7 years in cluding 1949, have exceeded yield from C.P. 29/116 rather consisten ly by approximately 12%. In cor trast, annual yields from C.P. 34 120 dropped from 15% above th C.P. 29/116 yield at the beginnin of the period to 4% below the C.P 29/116 yield in 1949. Yields fro Co. 290 and C.P. 29/320 in relatio to comparable yields from C.P. 29 116 have likewise decreased in th course of time. Therefore, the in creased emphasis placed on C.P. 36 105 in commercial acreage in pre ference to Co. 290, C.P. 34/120 an 29/320 during the past 2 years considered fully justified in the ligh of experimental results. Howeve results of all tests so far indicat that C.P. 36/105 should be largel if not entirely replaced by C.P. 44

Table 2. Results of plant cane variety tests on light soils in Louisiana during 1949.

Average	Godchaux (Raceland)[1] 11-29[6]	Oaklawn (Franklin)[2] 11-23	Albania (Jeanerette)[3] 11-22	Stella (St. Martinville)[4] 11-17	Alma (Lakeland)[5] 11-16	Bon Secour (St. James)[1] 11-28	Average
Average yield of cane per acre (tons)							
*Co. 290	20.7	11.7	27.0	17.9	37.3	31.5	24.35
*C. P. 29/116	22.2	15.5	26.7	19.9	36.6	34.9	25.97
*C. P. 29/320	17.2	8.6	20.5	15.6	25.4	21.6	18.15
*C. P. 34/120	22.2	10.0	19.4	15.2	27.7	26.8	20.22
*C. P. 36/13	21.8	10.3	21.7	13.8	32.2	29.1	21.48
*C. P. 36/105	21.5	12.1	24.1	17.8	31.0	28.3	22.47
*C. P. 36/183	24.0	12.7	24.1	16.4	30.2	31.0	23.07
*C. P. 44/101	23.0	12.6	25.1	17.8	31.5	33.0	23.83
*C. P. 44/155	22.9	11.5	24.5	13.8	30.2	28.5	21.90
**C. P. 43/3	25.8	14.5	23.5	15.5	31.6	32.0	23.82
**C. P. 43/9	22.8	13.4	22.3	17.9	28.8	29.6	22.47
**C. P. 43/32	25.9	18.8	23.4	17.2	34.5	28.1	24.65
**C. P. 43/33	21.9	13.1	20.2	14.4	28.7	25.2	20.58
**C. P. 43/47	23.5	13.8	24.7	17.8	28.0	27.9	22.62
**C. P. 44/69	24.9	14.3	21.1	15.0	34.3	28.2	22.97
**C. P. 44/92	19.7	12.0	22.2	12.9	29.3	26.9	20.50
*C. P. 44/153	25.5	17.8	27.1	16.1	35.5	28.7	25.12
**C. P. 45/73	19.5	12.9	24.8	15.5	28.7	27.9	21.55
**C. P. 45/119	22.9	11.6	24.5	17.6	38.5	27.2	23.72
**C. P. 45/122	22.3	14.8	21.3	16.3	28.4	27.8	21.82
**C. P. 45/125	17.7	13.8	21.4	14.8	26.7	23.6	19.67
**C. P. 45/137	22.0	12.6	23.0	17.1	29.3	23.2	21.20
**C. P. 45/155	19.3	13.0	18.1	16.3	22.3	28.2	19.53
**C. P. 45/184	28.1	17.2	27.0	18.2	36.8	27.8	25.85
Average indicated yield of 96° sugar per ton of cane (pounds).							
*Co. 290	188.0	208.3	195.2	207.1	144.8	191.1	182.9
*C. P. 29/116	171.8	191.1	178.3	200.7	140.6	165.0	169.7
*C. P. 29/320	210.1	222.1	238.1	229.7	196.8	228.1	219.6
*C. P. 34/120	209.2	226.2	216.5	232.4	206.6	221.8	216.8
*C. P. 36/13	206.9	227.4	239.0	240.4	188.1	231.5	218.4
*C. P. 36/105	195.9	219.5	223.8	235.7	202.2	224.9	215.8
*C. P. 36/183	154.9	208.2	221.0	236.5	179.5	206.5	197.9
*C. P. 44/101	207.1	214.0	224.1	227.5	186.4	212.2	209.9
*C. P. 44/155	212.6	232.4	226.1	234.0	183.0	205.0	210.6
**C. P. 43/3	179.8	183.5	222.1	224.9	179.8	193.0	195.0
**C. P. 43/9	177.7	206.5	193.3	187.4	153.3	162.5	175.8
**C P. 43/32	189.5	211.8	201.9	211.6	145.0	204.0	189.2
**C. P. 43/33	199.6	219.4	227.8	227.6	180.6	212.2	207.8
**C. P. 43/47	203.9	220.3	224.1	227.8	198.3	232.5	217.1
**C. P. 44/69	198.0	235.9	206.8	230.2	176.4	200.0	201.8
**C. P. 44/92	211.1	232.7	262.3	252.2	212.5	251.8	236.0
*C. P. 44/153	191.2	204.7	208.8	202.8	152.9	192.6	188.4
**C. P. 45/73	213.4	257.1	249.8	258.2	198.4	240.8	232.7
**C. P. 45/119	205.7	239.9	223.5	231.4	186.1	231.7	214.4
**C. P. 45/122	162.8	183.0	188.6	180.4	____	168.7	173.3[8]
**C. P. 45/125	217.7	260.6	235.7	236.9	198.4	233.3	227.1
**C. P. 45/137	175.7	188.1	201.4	206.9	153.5	200.0	185.1
**C. P. 45/155	163.0	203.4	155.4	208.9	148.6	189.0	176.2
**C. P. 45/184	185.6	221.2	218.0	214.5	173.3	206.7	201.2

Table 2—Continued. Results of plant cane variety tests on light soils in Louisiana during 1949.

Average	Godchaux (Raceland)[1] 11-29[6]	Oaklawn (Franklin)[2] 11-23	Albania (Jeanerette)[3] 11-22	Stella (St. Martinville)[4] 11-17	Alma (Lakeland)[5] 11-16	Bon Secour (St. James)[1] 11-28	Average
Average indicated yield of 96° sugar per acre (pounds)							
*Co. 290	3892	2437	5270	3707	5401	6020	4454
*C. P. 29/116	3814	2962	4761	3994	5146	5758	4406
*C. P. 29/320	3614	1910	4881	3583	4999	4927	3986
*C. P. 34/120	4644	2262	4200	3532	5723	5944	4384
*C. P. 36/13	4510	2342	5186	3318	6057	6737	4692
*C. P. 36/105	4212	2656	5394	4195	6268	6365	4848
*C. P. 36/183	3718	2644	5326	3879	5421	6401	4565
*C. P. 44/101	4763	2696	5625	4049	5872	7003	5001
*C. P. 44/155	4869	2673	5539	3229	5527	5842	4613
**C. P. 43/3	4639	2661	5219	3486	5682	6176	4644
**C. P. 43/9	4052	2767	4311	3354	4415	4810	3951
**C. P. 43/32	4908	3982	4724	3640	5002	5732	4665
**C. P. 43/33	4371	2874	4602	3277	5183	5347	4276
**C. P. 43/47	4792	3040	5535	4055	5552	6487	4910
**C. P. 44/69	4930	3373	4363	3453	6051	5640	4635
**C. P. 44/92	4159	2792	5823	3253	6226	6773	4838
*C. P. 44/153	4876	3644	5658	3265	5428	5528	4733
**C. P. 45/73	4161	3317	6195	4002	5694	6718	5014
**C. P. 45/119	4711	2783	5476	4073	7165	6302	5085
**C. P. 45/122	3630	2708	4017	2941	____	4690	3781[8]
**C. P. 45/125	3853	3596	5044	3506	5297	5506	4467
**C. P. 45/137	3865	2370	4632	3538	4498	4640	3924
**C. P. 45/155	3146	2644	2813	3405	3314	5330	3442
**C. P. 45/184	5496	3805	5886	3904	6377	5746	5202

[1] Mhoon very fine sandy loam.

[2] Baldwin silty clay loam.

[3] Baldwin silty loam.

[4] Baldwin very fine sandy loam.

[5] Robinsonville very fine sandy loam.

[6] Date of harvest.

[7] Weighted average values given for this and subsequent tables.

[8] Average based on an assumed value for missing yield calculated according to Yates formula for determining missing plot values. (Paterson, D. D. Statistical Technique in Agricultural Reasearch pp. 181-188).

* Averages shown are based on 4 yield determinations at each station.

** Averages shown are based on 2 yield determinations at each station.

Table 3. Results of first stubble variety tests on light soils in Louisiana during 1949.

Variety	Godchaux (Raceland)[1] 11-8[5]	Oaklawn (Franklin)[2] 11-1	Albania (Jeanerette)[3] 10-26	Stella (St. Martinville)[3] 11-3	Alma (Lakeland)[4] 11-15	Average
	Average yield of cane per acre (tons)					
*Co. 290	24.7	20.9	18.4	17.7	29.3	22.20
**C. P. 29/116	24.2	16.6	16.1	19.5	31.0	21.48
*C. P. 29/120	19.3	17.2	8.7	15.7	22.6	16.70
*C. P. 29/320	18.2	9.8	10.2	13.3	23.7	15.04
**C. P. 34/92	21.2	13.4	15.7	13.3	27.6	18.24
*C. P. 34/120	21.0	13.8	16.5	16.5	28.1	19.18
*C. P. 36/13	22.8	19.6	11.5	12.7	27.3	18.78
*C. P. 36/19	21.5	15.8	14.4	15.7	18.6	17.20
*C. P. 36/105	23.8	19.5	19.8	15.8	28.0	21.38
*C. P. 36/183	25.7	21.3	18.4	16.9	24.9	21.44
**C. P. 36/179	28.0	19.0	16.8	16.3	26.7	21.36
**C. P. 37/5	----	16.5	18.5	15.1	26.4	20.18[6]
**C. P. 43/3	----	15.6	18.4	12.0	19.0	17.30[6]
**C. P. 43/9	30.8	20.2	19.8	19.1	27.2	23.42
**C. P. 43/13	28.0	18.0	20.1	17.1	26.6	21.96
**C. P. 43/28	----	17.2	23.6	18.4	31.6	23.76[6]
**C. P. 43/32	35.2	17.4	22.2	18.8	22.7	23.26
**C. P. 43/33	24.0	17.7	20.1	16.3	25.9	20.80
**C. P. 43/47	22.4	18.6	17.6	17.3	25.2	20.22
**C. P. 44/69	27.0	19.4	16.4	13.7	20.6	19.42
**C. P. 44/72	21.0	17.5	22.3	17.6	25.4	20.76
**C. P. 44/101	30.6	21.3	27.5	21.1	32.0	26.50
**C. P. 44/153	29.5	20.1	19.5	18.4	33.4	24.18
**C. P. 44/155	23.8	16.9	13.8	21.2	29.1	20.96
	Average indicated yield of 96° sugar per ton of cane (pounds)					
*Co. 290	180.7	178.9	164.8	202.2	164.6	176.9
**C. P. 29/116	142.8	189.8	156.8	205.2	161.3	168.8
*C. P. 29/120	192.6	194.5	202.7	218.3	199.4	200.7
*C. P. 29/320	189.8	213.5	199.9	217.7	215.5	207.2
**C. P. 34/92	182.0	185.4	164.4	184.7	174.1	177.5
*C. P. 34/120	191.0	216.8	197.7	213.5	214.9	206.7
*C. P. 36/13	194.4	221.3	211.7	229.4	225.0	215.8
*C. P. 36/19	194.7	215.2	211.7	255.5	226.3	219.2
*C. P. 36/105	193.4	197.7	198.3	196.7	211 0	200.2
*C. P. 36/183	156.5	215.8	192.9	214.2	208.1	195.6
**C. P. 36/179	178.2	189.8	162.9	220.0	-----	188.1[6]
**C. P. 37/5	-----	228.3	190.4	221.2	208.9	107.1[6]
**C. P. 43/3	-----	158.8	189.3	210.1	202.3	186.4[6]
**C. P. 43/9	185.3	192.7	179.8	191.0	182.0	185.8
**C. P. 43/13	180.0	186.9	193.4	213.6	200.2	193.7
**C. P. 43/28	-----	206.5	187.7	202.1	176.8	187.9[6]
**C. P. 43/32	178.4	196.1	185.5	218.0	202.7	193.6
**C. P. 43/33	210.0	194.8	191.6	214.5	211.0	204.8
**C. P. 43/47	196.8	207.0	194.6	223.1	221.7	209.0
**C. P. 44/69	180.5	206.4	173.4	209.7	195.7	191.8
**C. P. 44/72	166.3	216.2	191.1	213.7	197.9	195.8
**C. P. 44/101	208.0	206.5	180.3	219.5	197.5	201.3
**C. P. 44/153	192.0	194.2	197.7	210.9	183.5	193.8
**C. P. 44/155	223.0	223.5	198.8	223.2	194.6	212.1

Table 3—Continued—Results of first stubble variety tests on light soils in Louisiana during 1949.

Variety	Godchaux (Raceland)[1] 11-8[5]	Oaklawn (Franklin)[2] 11-1	Albania (Jeanerette)[3] 10-26	Stella (St. Martinville)[3] 11-3	Alma (Lakeland)[4] 11-15	Average
	Average indicated yield of 96° sugar per acre (pounds)					
*Co. 290	4463	3739	3032	3579	4823	3927
**C. P. 29/116	3456	3151	2524	4001	5000	3626
*C. P. 29/120	3717	3345	1763	3427	4506	3352
*C. P. 29/320	3454	2092	2039	2895	5107	3117
**C. P. 34/92	3858	2484	2581	2457	4805	3237
*C. P. 34/120	4011	2992	3262	3523	6039	3965
*C P. 36/13	4432	4337	2435	2913	6142	4052
*C. P. 36/19	4186	3400	3048	4011	4209	3771
*C. P. 36/105	4603	3855	3926	3108	5908	4280
*C. P. 36/183	4022	4597	3549	3620	5182	4194
**C. P. 36/179	4990	3606	2737	3586	----	4018[6]
**C. P. 37/5	----	3767	3522	3340	5515	4179[6]
**C. P. 43/3	----	2477	3483	2521	3844	3224[6]
**C. P. 43/9	5707	3893	3560	3648	4950	4352
**C. P. 43/13	5040	3364	3887	3653	5325	4254
**C. P. 43/28	----	3552	4430	3719	5587	4465[6]
**C. P. 43/32	6280	3412	4118	4098	4601	4502
**C. P. 43/33	5040	3448	3851	3496	5465	4260
**C. P. 43/47	4408	3850	3425	3860	5587	4226
**C. P. 44/69	4873	4004	2844	2873	4031	3725
**C. P. 44/72	3492	3783	4262	3761	5027	4065
**C. P. 44/101	6365	4398	4958	4631	6320	5334
**C. P. 44/153	5664	3903	3855	3881	6129	4686
**C. P. 44/155	5329	3760	2743	4734	5663	4446

[1] Mhoon silty clay loam.
[2] Baldwin silty clay loam.
[3] Baldwin very fine sandy loam.
[4] Commerce very fine sandy loam.
[5] Date of harvest.
[6] Average based on an assumed value for missing yield calculated according to Yates formula for determining missing plot values. (Paterson, D. D. Statistical Technique in Agricultural Research pp. 181-188).
* Averages shown are based on 4 yield determinations at each station.
** Averages shown are based on 2 yield determinations at each station.

Table 4. Results of second stubble variety tests on light soils in Louisiana during 1949.

Variety	Godchaux (Raceland)[1] 10-18[4]	Stella[2] (St. Martinville) 10-24	Alma (Lakeland)[3] 10-19	Average
	Average yield of cane per acre (tons)			
*Co. 281	3.9	1.1	4.4	3.13
*Co. 290	7.0	9.1	14.0	10.03
**C. P. 28/19	2.8	3.3	3.9	3.33
*C. P. 29/116	14.5	15.7	16.9	15.70
*C. P. 29/120	6.2	10.9	13.3	10.13
*C. P. 29/320	8.3	11.1	14.4	11.27

Table 4—Continued. Results of second stubble variety tests on light soils in Louisiana during 1949

Variety	Godchaux (Raceland)[1] 10-18[4]	Stella[3] (St. Martinville) 10-24	Alma (Lakeland)[3] 10-19	Average
	Average yield of cane per acre (tons)			
*C. P. 34/120	9.9	8.1	14.4	10.80
*C. P. 36/13	10.0	7.9	13.9	10.60
*C. P. 36/19	11.3	19.1	14.0	14.80
*C. P. 36/105	13.4	12.4	16.4	14.07
*C. P. 36/183	8.8	13.4	21.1	14.43
**C. P. 36/161	12.8	15.9	10.9	13.20
**C. P. 36/178	12.0	9.1	10.6	10.57
**C. P. 36/179	12.9	12.2	15.2	13.43
**C. P. 36/203	18.3	11.6	11.9	13.93
**C. P. 37/5	3.3	12.5	10.3	8.70
**C. P. 43/3	----	9.9	13.0	10.93[5]
**C. P. 43/9	11.4	19.9	19.7	17.00
**C. P. 43/28	----	17.5	25.0	20.73[5]
**C. P. 43/32	13.9	11.3	14.6	13.27
**C. P. 43/33	16.7	14.8	9.6	13.70
**C. P. 43/47	15.2	15.7	15.7	15.53
**C. P. 43/49	----	15.5	11.2	12.83[5]
**F. 36-819	12.5	6.9	9.6	9.67
	Average indicated yield of 96° sugar per ton of cane (pounds)			
*Co. 281	102.2	181.1	137.4	128.1
*Co. 290	111.1	172.5	131.9	139.4
**C. P. 28/19	108.6	205.5	176.5	167.3
*C. P. 29/116	113.7	179.9	143.3	146.4
*C. P. 29/120	126.6	210.9	166.4	174.3
*C. P. 29/320	134.1	207.9	172.8	174.8
*C. P. 34/120	127.2	190.9	177.6	165.5
*C. P. 36/13	149.6	201.5	188.9	179.7
*C. P. 36/19	137.4	196.9	188.2	179.1
*C. P. 36/105	144.1	210.7	180.2	177.7
*C. P. 36/183	114.0	207.1	145.4	158.1
**C. P. 36/161	122.0	177.8	135.8	148.2
**C. P. 36/178	128.2	186.5	177.3	161.3
**C. P. 36/179	110.9	206.1	171.7	162.7
**C. P. 36/203	113.8	201.6	149.7	148.5
**C. P. 37/5	140.1	204.3	183.6	188.0
**C. P. 43/3	----	187.6	163.0	154.7[5]
**C. P. 43/9	117.1	198.1	157.2	164.2
**C. P. 43/28	----	173.4	160.7	155.8[5]
**C. P. 43/32	112.0	217.5	156.8	158.3
**C. P. 43/33	121.7	208.2	171.1	164.4
**C. P. 43/47	139.9	204.0	169.4	171.5
**C. P. 43/49	----	156.1	114.6	121.2[5]
**F. 36-819	129.0	211.2	181.8	166.0
	Average indicated yield of 96° sugar per acre (pounds)			
*Co. 281	399	199	605	401
*Co. 290	778	1570	1847	1398
**C. P. 28/19	304	678	688	557
*C. P. 29/116	1649	2824	2422	2298
*C. P. 29/120	785	2299	2213	1766
*C. P. 29/320	1113	2308	2488	1970

Table 4—Continued. Results of second stubble variety tests on light soils in Louisiana during 1949.

Variety	Godchaux (Raceland)[1] 10-18[4]	Stella[3] (St. Martinville) 10-24	Alma (Lakeland)[3] 10-19	Average
	Average indicated yield of 96° sugar per acre (pounds)			
*C. P. 34/120	1259	1546	2557	1787
*C. P. 36/13	1496	1592	2626	1905
*C. P. 36/19	1553	3761	2635	2650
*C. P. 36/105	1931	2613	2955	2500
*C. P. 36/183	1003	2775	3068	2282
**C. P. 36/161	1562	2827	1480	1956
**C. P. 36/178	1538	1697	1879	1705
**C. P. 36/179	1431	2514	2610	2185
**C. P. 36/203	2083	2339	1781	2068
**C. P. 37/5	462	2554	1891	1636
**C. P. 43/3	----	1857	2119	1691[5]
**C. P. 43/9	1335	3942	3097	2791
**C. P. 43/28	----	3034	4017	3229[5]
**C. P. 43/32	1557	2458	2289	2101
**C. P. 43/33	2032	3081	1643	2252
**C. P. 43/47	2126	3203	2660	2663
**C. P. 43/49	----	2420	1284	1555[5]
**F. 36-819	1612	1457	1745	1605

[1] Mhoon very fine sandy loam.

[3] Patoutville very fine sandy loam.

[3] Commerce very fine sandy loam.

[4] Date of harvest.

[5] Average based on an assumed value for missing yield calculated according to Yates formula for determining missing plot values. (Paterson, D. D. Statistical Technique in Agricultural Research pp. 181-188).

* Averages shown are based on 4 yield determinations at each station.

** Averages shown are based on 2 yield determinations at each station.

Table 5. Results of plant cane variety tests on heavy soils in Louisiana during 1949.

Variety	Greenwood (Thibodaux)[1] 11-25[6]	Oaklawn (Franklin)[2] 11-24	Alma (Lakeland)[3] 11-16	Station (Houma)[4] 11-17	Average
	Average yield of cane per acre (pounds)				
Co. 290	14.1	20.8	19.1	23.1	19.27
C. P. 29/116	20.0	22.9	24.5	27.6	23.75
C. P. 34/120	16.7	19.7	16.7	28.0	20.27
C. P. 36/105	18.7	20.1	17.9	26.6	20.82
C. P. 43/9	18.2	20.8	19.6	28.1	21.67
C. P. 44/101	20.4	21.0	20.9	26.5	22.20
C. P. 44/153	14.2	22.1	19.5	26.9	20.67
*C. P. 33/224	16.4	18.7	25.2	29.7	22.50
*C. P. 45/122	19.9	----	----	23.7	21.12[5]
*C. P. 45/184	18.2	22.2	23.9	27.1	22.85

Table 5—Continued. Results of plant cane variety tests on heavy soils in Louisiana during 1949.

Variety	Greenwood (Thibodaux)[1] 11-25[6]	Oaklawn (Franklin)[2] 11-24	Alma (Lakeland)[3] 11-16	Station (Houma)[4] 11-17	Average
Average indicated yield of 96° sugar per ton of cane (pounds)					
Co. 290	188.8	192.8	144.7	172.3	174.1
C. P. 29/116	167.6	177.8	143.5	168.4	164.1
C. P. 34/120	201.1	215.0	190.8	180.2	195.2
C. P. 36/105	196.3	201.9	206.4	191.8	198.4
C. P. 43/9	155.1	174.9	136.4	152.0	154.6
C. P. 44/101	220.1	203.8	196.5	198.1	204.1
C. P. 44/153	234.5	218.6	172.0	178.8	197.4
C. P. 33/224	187.3	176.4	172.5	162.4	172.6
C. P. 45/122	175.6	----	----	128.9	149.3
C. P. 45/184	177.2	213.7	175.9	202.1	193.1
Average indicated yield of 96° sugar per acre (pounds)					
Co. 290	2662	4010	2764	3980	3354
C. P. 29/116	3352	4072	3516	4648	3897
C. P. 34/120	3358	4235	3183	5046	3956
C. P. 36/105	3671	4058	3695	5102	4131
C. P. 43/49	2823	3638	2673	4271	3351
C. P. 44/101	4490	4280	4107	5250	4532
C. P. 44/153	3330	4831	3354	4810	4081
C. P. 33/224	3072	3299	4347	4823	3885
C. P. 45/122	3494	----	----	3055	3153
C. P. 45/184	3225	4744	4204	5477	4412

[1] Sharkey clay.
[2] Alligator clay, brown surface phase.
[3] Bowdre silty clay.
[4] Sharkey silty clay loam.
[5] Average based on an assumed value for missing yield calculated according to Yates formula for determining missing plot values. (Paterson, D. D. Statistical Technique in Agricultural Research pp. 181-188).
[6] Date of harvest.
* Average based on single determination; others based on 4 determinations at each station.

Table 6. Results of stubble variety tests on heavy soils in Louisiana during 1949.

Variety	First Stubble: Greenwood[1] (Thibodaux) 11-4[5]	Oaklawn[2] (Franklin) 11-2	Alma[3] (Lakeland) 11-15	Station[4] (Houma) 11-8	Average	Second Stubble: Station[4] (Houma) 10-19
Average yield of cane per acre (tons)						
Co. 290	6.7	12.2	18.8	18.9	14.15	15.42
C. P. 29/116	12.3	14.9	19.7	22.4	17.32	17.92
C. P. 34/92	7.8	12.8	17.3	12.4	12.57	14.65
C. P. 34/120	6.3	11.9	17.5	15.2	12.72	20.30
C. P. 36/13	3.5	16.5	14.5	15.7	12.55	20.31
C. P. 36/105	12.0	15.6	12.5	14.1	13.55	17.62

Table 6—Continued. Results of stubble variety tests on heavy soils in Louisiana during 1949.

Variety	First Stubble: Greenwood[1] (Thibodaux) 11-4[5]	Oaklawn[2] (Franklin) 11-2	Alma[3] (Lakeland) 11-15	Station[4] (Houma) 11-8	Average	Second Stubble: Station[4] (Houma) 10-19
Average yield of cane per acre (tons)						
C. P. 36/183	10.3	14.8	18.4	17.1	15.15	19.30
C. P. 36/197	9.3	11.2	12.7	20.2	13.35	18.97
C. P. 43/47	12.7	14.5	18.9	12.4	14.62	19.26
C. P. 43/49	10.3	15.3	15.4	19.6	15.15	----
*C. P. 33/224	11.7	12.5	22.8	23.3	17.57	20.10
*C. P. 44/101	23.6	----	22.8	28.9	24.90[6]	----
*C. P. 44/153	7.4	----	24.0	18.1	16.30[6]	----
Average indicated yield of 96° sugar per ton of cane (pounds)						
Co. 290	178.1	198.4	154.6	167.9	165.4	153.9
C. P. 29/116	165.1	176.4	163.2	173.7	169.9	157.4
C. P. 34/92	167.0	200.3	171.0	160.3	175.2	159.0
C. P. 34/120	181.7	220.6	182.1	172.9	188.2	161.7
C. P. 36/13	196.7	221.7	189.5	186.3	199.5	178.8
C. P. 36/105	196.5	216.3	197.2	185.4	199.5	162.3
C. P. 36/183	184.7	206.1	194.9	174.8	190.2	157.5
C. P. 36/197	210.0	230.6	192.6	205.0	208.2	183.8
C. P. 43/47	192.8	220.2	182.6	175.0	192.6	164.5
C. P. 43/49	137.9	168.3	142.6	145.2	149.1	----
C. P. 33/224	176.7	220.2	149.6	164.1	171.5	161.0
C. P. 44/101	181.6	----	199.1	188.1	194.3	----
C. P. 44/153	187.9	----	170.0	161.9	176.5	----
Average indicated yield of 96° sugar per ton of cane (pounds)						
Co. 290	1193	2420	2906	3173	2423	2373
C. P. 29/116	2031	2628	3215	3891	2941	2821
C. P. 34/92	1303	2564	2958	1988	2205	2329
C. P. 34/120	1145	2625	3187	2628	2396	3283
C. P. 36/13	688	3658	2748	2925	2505	3631
C. P. 36/105	2358	3374	2465	2614	2703	2860
C. P. 36/183	1902	3050	3586	2989	2882	3040
C. P. 36/197	1953	2583	2446	4141	2781	3487
C. P. 43/47	2449	3193	3451	2170	2816	3168
C. P. 43/49	1420	2575	2196	2846	2259	----
C. P. 33/224	2067	2752	3411	3824	3013	3236
C. P. 44/101	4286	----	4539	5436	4839	----
C. P. 44/153	1390	----	4080	2930	2877	----

[1] Sharkey clay.
[2] Iberia clay.
[3] Mhoon silty clay.
[4] Sharkey silty clay loam.
[5] Date of harvest.
[6] Average based on an assumed value for missing yield calculated according to Yates formula for determining missing plot values. (Paterson, D. D. Statistical Technique in Agricultural Research pp. 181-188).
* Average based on single determination at each station; others based on 4 determinations at each station.

101 as the supply of seed material of the latter becomes available.

Yields from C.P. 36/13 and C.P. 36/183 also decreased as compared with positions maintained in relation to C.P. 36/105 during 1948 but it is believed that the comparatively severe damage from stalk borers suffered by these 2 varieties during 1949 may have been the primary cause of the observed lowered production.

[1] The authors are indebted to Mr. L. G. Davidson, Associate Chemist, Division of Sugar Plant Investigations, for making juice analyses.

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Table 7

Results of variety tests on muck soil[1] at Clovelly Farms during 1949.

Variety	Plant Cane 12-1[2]			First Stubble 11-10			Second Stubble 11-9		
	Av. yield of cane[3] per acre	Av. indicated yield of 96° sugar		Av. yield of cane per acre	Av. indicated yield of 96° sugar		Av. yield of cane per acre	Av. indicated yield of 96° sugar	
		Per ton of cane	Per acre		Per ton of cane	Per acre		Per ton of cane	Per acre
	(tons)	(Lbs.)	(Lbs.)	(tons)	(Lbs.)	(Lbs.)	(tons)	(Lbs.)	(Lbs.)
Co. 281	----	----	----	----	----	----	3.5	124.8	437
C. P. 28/19	5.1	214.5	1094	7.1	204.0	1448	3.1	182.7	566
C. P. 29/120	11.9	176.2	2097	18.1	137.1	2482	11.6	132.0	1531
C. P. 29/320	----	----	----	13.7	161.9	2218	8.2	134.5	1103
C. P. 33/243	----	----	----	----	----	----	4.7	147.1	691
C. P. 33/253	8.3	210.3	1745	17.9	166.7	2984	15.9	156.5	2488
C. P. 33/372	----	----	----	----	----	----	21.8	132.5	2888
C. P. 33/425	----	----	----	----	----	----	1.3	112.6	146
C. P. 34/79	7.9	198.4	1567	20.4	179.9	3670	5.6	176.2	987
C. P. 34/120	7.3	188.0	1372	6.6	169.7	1120	9.8	160.2	1570
C. P. 36/13	8.3	212.1	1760	16.2	196.2	3178	13.2	182.1	2404
C. P. 36/62	----	----	----	----	----	----	6.2	165.1	1024
C. P. 37/5	9.0	183.9	1655	11.4	168.7	1923	----	----	----
C. P. 38/26	----	----	----	17.6	180.7	3180	----	----	----
C. P. 42/24	9.2	192.2	1768	11.8	143.0	1687	10.5	147.3	1547
C. P. 43/3	----	----	----	10.9	167.7	1828	9.9	133.7	1324
C. P. 43/9	----	----	----	19.7	163.7	3225	----	----	----
C. P. 43/13	----	----	----	22.9	141.4	3238	----	----	----
C. P. 43/33	12.0	203.5	2442	----	----	----	10.8	158.4	1711
C. P. 43/47	6.2	193.7	1201	15.6	167.7	2616	----	----	----
C. P. 43/74	12.5	207.9	2599	16.1	167.3	2694	9.5	151.4	1438
C. P. 44/28	----	----	----	----	----	----	1.7	124.2	211
C. P. 44/37	----	----	----	----	----	----	2.1	184.4	387
C. P. 44/69	----	----	----	----	----	----	----	----	----
C. P. 44/72	4.1	185.2	759	19.8	182.6	3615	----	----	----
C. P. 44/101	11.6	188.2	2183	12.4	190.3	2360	----	----	----
C. P. 44/153	10.6	200.3	2123	28.5	180.7	5150	----	----	----
C. P. 44/155	12.9	179.3	2313	21.6	139.8	2880	----	----	----
C. P. 45/73	6.5	228.2	1483	17.7	206.5	3655	----	----	----
C. P. 45/119	12.4	215.5	2672	----	----	----	----	----	----
C. P. 45/125	18.3	184.8	3382	----	----	----	----	----	----
F. 36/671	5.0	206.3	1031	----	----	----	----	----	----
	----	----	----	----	----	----	0.4	120.5	48

[1] Shallow muck over Sharkey clay.
[2] Date of harvest.
[3] Averages are based on 3 determinations

SUMMARY OF FERTILIZER TESTS ON SUGARCANE IN 1949

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Fifteen field fertilizer tests with sugarcane were conducted by the Soil Fertility Section of the Houma Station during 1949. Over half of these tests involved the use of nitrogen, nitrogen plus phosphate, nitrogen plus potash, and complete mixtures. In many of these tests the nitrogen was applied at rates of 36, 60, and 96 pounds per acre, and where phosphate or potash, or both, were included with the nitrogen, each was applied at the same rate at which the nitrogen was used. Data for this type of test are shown in tables 1-5. Some of the other tables also include a comparison of the effects of complete mixtures with nitrogen alone.

Table 1 shows data from a test with C. P. 36-105 first stubble cane on Bowdre clay on Additions Plantation. Cane on this heavy soil responded to nitrogen only, and showed the best response to the 96 pound rate of application. A nitrogen response was also shown by a test with C. P. 34-120 plant cane on the same type of soil on Forest Grove Plantation.

Results of a test with C. P. 36-105 first stubble cane on Commerce very fine sandy loam on St. Rose Plantation are shown in table 2. At the low level of fertilization, the cane responded to nitrogen only, but at the high level mixtures containing nitrogen and potash gave significant increases in sugar per acre over nitrogen alone.

Results of a similar test on the same soil type are shown in table 3. In this test a 5-ton per acre increase in yield of cane was obtained from the use of 60 pounds of nitrogen per acre. No additional yield increase of any significance was obtained by use of phosphate or potash with the nitrogen, or by increasing the rate of fertilization. In a similar test with C. P. 34-120 first stubble cane on the same soil type on Barrowza Plantation, the use of 36 pounds of nitrogen per acre increased the cane yield by 6 tons per acre, and no appreciable further increase was obtained by the use of more nitrogen, either alone or with phosphate or potash or both.

Table 4 gives results of a plant cane test on Mhoon very fine sandy loam on St. Rose Plantation. A yield of 30 tons of cane per acre was obtained on plots fertilized at the rate of 36 pounds of nitrogen per acre. An additional 3.6 tons of cane per acre but no additional increase in yield of sugar per acre of any significance was obtained from the 96-96-96 treatment.[1]. A similar test with C. P. 36-13 plant cane on the same soil type on Ardoyne Plantation showed a slight response to phosphate at the low nitrogen level but where 60 or 96 pounds of nitrogen per acre were used, either alone or in mixtures, the only significant response was to the nitrogen.

Table 5 shows the result of a test with C. P. 36-13 plant cane on Baldwin very fine sandy loam on Albania Plantation. The yield of cane from the unfertilized controls was over 25 tons per acre, and no significant yield increase was shown by any of the fertilizer treatments used.

Average results from tests with plant cane on light soil indicate that an application of 36 pounds of nitrogen per acre is sufficient except in the general vicinity of Baton Rouge, where little fertilizer response is obtained. On Sharkey soil plant cane generally responds to 60 pounds of nitrogen per acre. Average results with stubble cane indicate

TABLE 1
ADDITIONS PLANTATION
Cinclare, La.
1949

Bowdre clay **First stubble cane** **C. P. 36-105**

Fertilizer Treatments Pounds per acre			Houma Station Mill Analyses			Cane per acre	Indicated available 96° sugar at harvest	
N	P_2O_5	K_2O	Brix	Sucrose	Purity		Per ton of cane	Per acre
			%	%	%	tons	pounds	pounds
0	0	0	17.51	14.60	83.38	15.58	200.6	3125
24	0	0	17.83	15.16	85.03	20.88	210.4	4393
36	0	0	17.91	15.32	85.54	21.33	213.3	4550
36	36	0	17.95	14.93	83.18	21.83	204.9	4473
36	0	36	17.90	15.04	84.02	21.76	207.5	4515
36	36	36	17.68	15.08	85.29	18.54	209.7	3888
60	0	0	18.06	15.43	85.44	20.60	214.7	4423
60	60	0	18.03	15.42	85.52	22.60	214.7	4852
60	0	60	18.30	15.76	86.12	19.69	220.2	4336
60	60	60	17.85	15.06	84.37	23.00	208.2	4789
96	0	0	18.13	15.52	85.60	26.37	216.2	5701
96	96	0	17.52	15.00	85.62	27.08	209.0	5660
96	0	96	17.75	15.32	86.31	24.13	214.3	5171
96	96	96	17.78	15.17	85.32	24.85	211.0	5243
60	60	60 plus 100 lbs. magnesium sulfate	17.74	14.59	82.24	23.84	199.0	4744

	tons cane per acre	pounds sugar per acre
Least Significant Difference for P = .05	3.28	733
Least Significant Difference for P = .01	4.37	976

Data are averages for five plots, each five rows wide by 24 feet long.
Fertilizer applied April 27, 1949; cane harvested October 27, 1949.
Fertilizer materials used were ammonium nitrate, superphosphate, and muriate of potash. The cane was not burned before being weighed; a 7% deduction in weight was made to allow for trash.

TABLE 2
ST. ROSE PLANTATION
Labadieville, La.
1949

Commerce very fine sandy loam. **First stubble cane** **C. P. 36-105**

Fertilizer Treatments Pounds per acre			Houma Station Mill Analyses			Cane per acre	Indicated available 96° sugar at harvest	
N	P_2O_5	K_2O	Brix	Sucrose	Purity		Per ton of cane	Per acre
			%	%	%	tons	pounds	pounds
0	0	0	16.86	13.57	80.49	15.71	182.9	2873
36	0	0	16.96	13.86	81.72	21.31	188.4	4015
36	18	0	17.41	13.58	78.00	22.08	179.7	3968
36	36	0	17.15	13.49	78.66	22.87	179.4	4103
36	0	18	16.91	13.58	80.31	21.67	182.8	3961
36	0	36	17.31	14.16	81.80	21.98	192.5	4231
36	36	36	17.35	14.18	81.73	22.90	192.7	4413

Table 2—Continued
ST. ROSE PLANTATION
Labadieville, La.
1949

Commerce very sandy loam. **First stubble cane** **C. P. 36-105**

Fertiiizer Treatments Pounds per acre			Houma Station Mill Analyses			Cane per acre	Indicated available 96° sugar at harvest	
N	P_2O_5	K_2O	Brix	Sucrose	Purity		Per ton of cane	Per acre
			%	%	%	tons	pounds	pounds
60	0	0	16.74	13.23	79.03	22.73	176.4	4010
60	15	0	17.03	13.53	79.45	23.82	181.0	4311
60	30	0	16.85	13.06	77.51	24.99	172.2	4303
60	45	0	17.35	13.69	78.91	25.24	182.4	4604
60	60	0	16.91	13.13	77.65	25.65	173.3	4445
60	0	15	17.23	13.82	80.21	23.44	185.9	4357
60	0	30	16.89	13.45	79.63	23.91	180.2	4309
60	0	45	16.94	13.54	79.93	23.38	181.7	4248
60	0	60	16.85	14.14	83.91	24.61	194.9	4796
60	60	60	17.37	14.08	81.06	26.03	190.5	4959
96	0	0	16.34	12.34	75.52	22.81	160.1	3652
96	96	0	16.59	12.20	73.54	24.43	155.6	3801
96	0	96	16.98	13.42	79.03	29.18	179.0	5223
96	69	96	16.73	13.03	77.88	29.71	172.3	5119
60	60	60 plus 100 lbs. magnesium sulfate.	17.28	14.19	82.12	22.76	193.4	4402

	tons cane per acre	pounds sugar per acre
Least Significant Difference for P = .05	2.78	670
Least Significant Difference for P = .01	3.69	891

Data are averages of four plots, each five rows wide by 20 feet long. Fertiiizer applied April 19, 1949; cane harvested October 18, 1949. Fertilizer materials used were ammonium nitrate, superphosphate, and muriate of potash. The cane was not burned before being weighed; an 8% deduction in weight was made to allow for trash.

TABLE 3
WEBRE PLANTATION
Thibodaux, La.
1949

Commerce very fine sandy loam **First stubble cane** **C. P. 34-120**

Fertilizer Treatments Pounds per acre			Houma Station Mill Analyses			Cane per acre	Indicated available 96° sugar at harvest	
N	P_2O_5	K_2O	Brix	Sucrose	Purity		Per ton of cane	Per acre
			%	%	%	tons	pounds	pounds
0	0	0	16.69	14.31	85.74	16.11	199.5	3214
36	0	0	16.89	14.56	86.20	17.76	203.5	3614
36	36	0	17.11	14.85	86.79	19.92	208.3	4149
36	0	36	16.93	14.54	85.88	20.06	202.9	4070
36	36	36	16.60	14.13	85.12	21.74	196.3	4268
60	0	0	16.40	13.91	84.82	21.33	192.8	4112
60	60	0	16.77	14.43	86.05	20.48	201.5	4127

Table 3—Continued
WEBRE PLANTATION
Thibodaux, La.—1949

Commerce very fine sandy loam. First Stubble cane C. P. 43-120

Fertilizer Treatments Pounds per acre			Houma Station Mill Analyses			Cane per acre	Indicated available 96° sugar at harvest	
N	P_2O_5	K_2O	Brix	Sucrose	Purity		Per ton of cane	Per acre
			%	%	%	tons	pounds	pounds
60	0	60	16.94	14.53	85.77	19.62	202.6	3975
60	60	60	16.63	14.43	86.77	23.66	202.4	4789
96	0	0	16.09	13.42	83.41	20.84	184.4	3843
96	96	0	17.00	14.55	85.59	18.47	202.7	3744
96	0	96	16.45	14.20	86.32	22.60	198.6	4488
96	96	96	16.30	13.91	85.34	21.92	193.5	4242
60	60	60 plus 100 lbs. magnesium sulfate	17.02	14.57	85.61	21.30	203.0	4324

	tons cane per acre	pounds sugar per acre
Least Significant Difference for P = .05	3.95	----

Data are averages of five plots, each five rows wide by 24 feet long. Fertilizer applied April 18, 1949; cane harvested November 3, 1949. Fertilizer materials used were ammonium nitrate, superphosphate, and muriate of potash. The cane was not burned before being weighed; an 8% deduction in weight was made to allow for trash.

TABLE 4—ST. ROSE PLANTATION
Labadieville, La.—1949

Mhoon very fine sandy loam Plant cane C. P. 36-13

Fertilizer Treatments Pounds per acre			Houma Station Mill Analyses			Cane per acre	Indicated available 96° sugar at harvest	
N	P_2O_5	K_2O	Brix	Sucrose	Purity		Per ton of cane	Per acre
			%	%	%	tons	pounds	pounds
0	0	0	18.11	15.62	86.25	24.72	231.8	5730
36	0	0	18.16	15.64	86.12	29.90	231.9	6934
36	36	0	17.62	14.82	84.11	28.28	217.1	6140
36	0	36	17.89	15.16	84.74	31.37	222.9	6992
36	36	36	17.74	14.97	84.39	32.07	219.7	7046
60	0	0	17.65	14.81	83.91	31.94	216.7	6921
60	60	0	18.12	15.34	84.66	32.12	225.5	7243
60	0	60	17.87	15.20	85.06	31.41	224.0	7036
60	60	60	17.91	15.10	84.31	31.92	221.5	7070
96	0	0	17.48	14.57	83.35	31.78	212.4	6750
96	96	0	17.05	14.03	82.29	32.11	203.1	6522
96	0	96	17.36	14.62	84.22	31.81	214.3	6817
96	96	96	17.17	14.43	84.04	33.53	211.3	7085

	tons cane per acre	pounds sugar per acre
Least Significant Difference for P = .05	3.24	647
Least Significant Difference for P = .01	4.31	860

Data are averages of six plots, each five rows wide by 20 feet long. Fertilizer applied April 19, 1949; cane harvested December 9, 1949. Fertilizer materials used were ammonium nitrate, superphosphate, and muriate of potash. The cane was not burned before being weighed; a 9% deduction in weight was made to allow for trash.

Table 5
ALBANIA PLANTATION
Jeanerette, La.
1949

Baldwin very fine sandy loam. Plant cane C. P. 36-13

Fertilizer Treatments Pounds per acre			Houma Station Mill Analyses			Cane per acre	Indicated available 96° sugar at harvest	
N	P_2O_5	K_2O	Brix	Sucrose	Purity		Per ton of cane	Per acre
			%	%	%	tons	pounds	pounds
0	0	0	16.82	14.81	88.05	25.70	222.1	5708
24	0	0	17.43	15.13	86.80	25.04	225.3	5642
36	0	0	17.04	14.83	87.03	26.35	221.1	5826
36	36	0	16.95	14.82	87.43	27.90	221.4	6177
36	0	36	16.93	14.96	88.36	29.29	224.7	6581
36	36	36	17.47	15.36	87.92	30.79	230.1	7085
60	0	0	16.60	14.35	86.45	27.96	213.2	5961
60	60	0	17.12	15.14	88.43	29.31	227.5	6668
60	0	60	17.33	15.37	88.69	29.17	231.3	6747
60	60	60	17.10	15.23	89.06	29.16	229.6	6695
96	0	0	16.34	14.13	86.47	28.94	210.0	6077
96	96	0	16.87	14.65	86.84	30.28	218.2	6607
96	0	96	16.86	14.83	87.96	31.14	222.2	6919
96	96	96	16.42	14.50	88.31	29.88	217.7	6505
60	60	60 plus 100 lbs. magnesium sulfate	17.23	15.15	87.93	30.23	227.0	6862

The yields of cane and sugar were not significantly affected by any of the above fertilizer treatments.

Data are averages of three plots, each five rows wide by 24 feet long. Fertilizer applied April 13, 1949; cane harvested November 15, 1949. Fertilizer materials used were ammonium nitrate, superphosphate, and muriate of potash. The cane was not burned before being weighed; a 12% deduction in weight was made to allow for trash.

TABLE 6
OAKLAWN PLANTATION
Franklin, La.
1949

Baldwin silty clay to silty clay loam First stubble cane Co. 290

Fertilizer Treatments Pounds per acre			Houma Station Mill Analyses			Cane per acre	Indicated available 96° sugar at harvest	
N	P_2O_5	K_2O	Brix	Sucrose	Purity		Per ton of cane	Per acre
			%	%	%	tons	pounds	pounds
0	0	0	17.40	15.11	86.84	10.20	229.3	2339
Aqua ammonia								
60	0	0	17.08	14.46	84.66	19.85	216.6	4300
60	60	0	16.93	14.31	84.52	20.11	214.2	4308
60	0	60	16.81	14.50	86.26	21.61	219.3	4739
60	60	60	17.07	14.56	85.30	21.58	219.0	4726
Ammonium sulfate								
60	0	0	17.40	14.75	84.77	17.60	221.1	3891
60	60	0	17.03	14.26	83.73	18.59	212.4	3949
60	0	60	17.01	14.33	84.24	18.86	214.1	4038
60	60	60	17.11	14.39	84.10	19.12	214.8	4107

Table 6—Continued

OAKLAWN PLANTATION
Franklin, La.—1949

Baldwin silty clay to silty clay loam — First stubble cane — **Co. 290**

Fertilizer Treatments Pounds per acre			Houma Station Mill Analyses			Cane per acre	Indicated available 96° sugar at harvest	
N	P_2O_5	K_2O	Brix	Sucrose	Purity		Per ton of cane	Per acre
			%	%	%	tons	pounds	pounds
Ammonium nitrate								
60	0	0	17.04	14.42	84.62	18.77	216.0	4054
60	60	0	17.18	14.40	83.82	19.27	214.6	4135
60	0	60	16.80	14.21	84.58	19.14	212.8	4073
60	60	60	16.88	14.24	84.36	20.89	212.9	4447
Nitrate of Soda								
60	0	0	16.95	14.42	85.07	19.48	216.6	4219
60	60	0	17.38	14.61	84.06	21.27	218.1	4639
60	0	60	17.20	14.71	85.52	19.60	221.5	4341
60	60	60	17.00	14.29	84.06	19.54	213.3	4168

	tons cane per acre	pounds sugar per acre
Least Significant Difference for P = .05	2.57	571
Least Significant Difference for P = .01	3.40	757

Data are averages of six plots, each three rows wide by 24 feet long. Fertilizer applied May 11, 1949; cane harvested November 21, 1949. Sources of nitrogen used are listed in table; other fertilizer materials used were superphosphate and muriate of potash. The cane was not burned before being weighed; a 10% deduction in weight was made to allow for trash.

TABLE 7
MANDALAY PLANTATION
Houma, La.
1949

Mhoon silt loam to very fine sandy loam — Plant cane — **C. P. 36-13**

Fertilizer Treatments Pounds per acre			Houma Station Mill Analyses			Cane per acre	Indicated available 96° sugar at harvest	
N	P_2O_5	K_2O	Brix	Sucrose	Purity		Per ton of cane	Per acre
			%	%	%	tons	pounds	pounds
0	0	0	18.29	15.73	86.00	25.54	233.1	5953
Ammonium sulfate								
35	0	0	18.06	15.56	86.16	31.32	230.8	7229
64	0	0	17.44	15.05	86.30	32.33	223.4	7223
100	0	0	17.27	14.58	84.42	32.56	214.0	6968
64	64	64	17.82	15.58	87.43	32.37	232.8	7536
Nitrate of soda								
35	0	0	18.01	15.78	87.62	31.83	236.0	7512
64	0	0	17.75	15.26	85.97	34.55	226.1	7812
100	0	0	17.61	15.14	85.97	33.01	224.3	7404
64	64	64	17.93	15.35	85.61	34.94	226.9	7928
Ammonium nitrate								
35	0	0	18.13	15.81	87.20	31.06	235.9	7327
64	0	0	17.30	14.74	85.20	31.18	217.4	6779
100	0	0	17.14	15.00	87.51	32.11	224.2	7199
64	64	64	17.48	14.82	84.78	33.04	218.0	7203

Table 7—Continued

MANDALAY PLANTATION
Houma, La.
1949

Mhoon silt loam to very fine sandy loam — Plant Cane — **C. P. 36-13**

Fertilizer Treatments Pounds per acre			Houma Station Mill Analyses			Cane per acre	Indicated available 96° sugar at harvest	
N	P_2O_5	K_2O	Brix	Sucrose	Purity		Per ton of cane	Per acre
			%	%	%	tons	pounds	pounds
Aqua ammonia								
35	0	0	18.27	16.16	88.45	29.32	242.8	7119
64	0	0	17.64	15.29	86.68	31.48	227.5	7162
100	0	0	17.46	15.30	87.63	32.68	228.9	7480
64	64	64	17.92	15.60	87.05	33.64	232.6	7825

	tons cane per acre	pounds sugar per acre
Least Significant Difference for P = .05	2.94	787
Least Significant Difference for P = .01	3.93	1052

Data are averages of four plots, each five rows wide by 24 feet long. Fertilizer applied May 10, 1949; cane harvested November 29, 1949. Sources of nitrogen used are listed in table; other fertilizer materials used were superphosphate and muriate of potash. The cane was not burned before being weighed; a 13% deduction in weight was made to allow for trash.

TABLE 8
HOLLYWOOD PLANTATION
Houma, La.
1949

Mhoon silt loam — First stubble cane — **C. P. 36-13**

Fertilizer Treatments Pounds per acre			Houma Station Mill Analyses			Cane per acre	Indicated available 96° sugar at harvest	
N	P_2O_5	K_2O	Brix	Sucrose	Purity		Per ton of cane	Per acre
			%	%	%	tons	pounds	pounds
0	0	0	16.74	13.92	83.15	14.75	202.7	2990
Ammonium sulfate								
35	0	0	16.49	13.50	81.87	24.45	194.9	4765
64	0	0	16.16	13.08	80.94	26.42	187.6	4956
100	0	0	15.97	12.90	80.78	27.21	184.9	5031
64	64	64	16.57	13.62	82.20	27.14	197.1	5349
Nitrate of soda								
35	0	0	16.32	13.48	82.60	23.08	195.6	4514
64	0	0	15.34	12.25	79.86	25.01	174.4	4362
100	0	0	15.36	12.24	79.69	26.25	174.1	4570
64	64	64	16.26	13.40	82.41	25.79	194.2	5008
Ammonium nitrate								
35	0	0	16.34	13.48	82.50	21.49	195.4	4199
64	0	0	15.78	12.70	80.48	24.45	181.6	4440
100	0	0	15.55	12.47	80.19	24.99	178.0	4448
64	64	64	15.89	12.84	80.81	27.22	184.0	5008

Table 8—Continued
HOLLYWOOD PLANTATION
Houma, La.
1949

Mhoon silt loam — First stubble cane — C. P. 36-13

Fertilizer Treatments Pounds per acre			Houma Station Mill Analyses			Cane per acre	Indicated available 96° sugar at harvest	
N	P_2O_5	K_2O	Brix	Sucrose	Purity		Per ton of cane	Per acre
			%	%	%	tons	pounds	pounds
Aqua ammonia								
35	0	0	16.20	13.36	82.47	21.92	193.7	4246
64	0	0	16.17	13.32	82.37	23.19	193.0	4476
100	0	0	15.64	12.60	80.56	25.65	180.3	4625
64	64	64	16.09	13.08	81.29	25.11	188.1	4723

	tons cane per acre	pounds sugar per acre
Least Significant Difference for P = .05	3.42	612
Least Significant Difference for P = .01	4.57	818

Data are averages of four plots, each five rows wide by 24 feet long. Fertilizer applied May 9, 1949; cane harvested October 14, 1949. Sources of nitrogen used are listed in table; other fertilizer materials used were superphosphate and muriate of potash. The cane was not burned before being weighed; an 11% deduction in weight was made to allow for trash.

TABLE 9
FOREST GROVE PLANTATION
Thibodaux, La.
1949

Bowdre silty clay — Plant cane — C. P. 34-120

Fertilizer treatments (Notrogen per acre)		Houma Sgation mill analyses			Cane per acre	Indicated available 96° sugar at harvest	
Fall	Spring	Brix	Sucrose	Purity		Per ton of cane	Per acre
pounds	pounds	%	%	%	tons	pounds	pounds
0	0	16.57	13.74	82.92	16.43	188.2	3092
0	36	16.52	13.53	81.90	19.39	184.1	3570
0	60	16.33	13.26	81.20	19.78	179.6	3552
0	96	16.10	12.99	80.68	19.74	175.3	3460
25	0	16.47	13.48	81.85	16.99	183.4	3116
25	36	16.88	13.88	82.23	20.28	189.3	3839
25	60	16.12	12.86	79.78	19.78	172.4	3410
25	96	16.24	13.19	81.22	20.89	178.6	3731
50	0	16.58	13.56	81.79	19.88	184.4	3666
50	36	16.36	13.19	80.62	22.18	177.9	3946
50	60	16.28	13.04	80.10	21.80	175.2	3819
50	96	16.33	13.22	80.96	22.35	178.7	3994

Data are averages of six plots, each five rows wide by 20 feet long. Cane planted and fall fertilizer applied September 29, 1948. Spring fertilizer applied April 20, 1949. Cane harvested November 4, 1949. Fertilizer materials used were sulfate of ammonia in the fall and ammonium nitrate in the spring. The cane was not burned before being weighed a 10% deduction in weight was made to allow for trash.

TABLE 10—ALMA PLANTATION
Lakeland, La.—1949

Sharkey silty clay — Plant cane — C. P. 34-120

Fertilizer treatments (Notrogen per acre)		Houma Station mill analyses			Cane per acre	Indicated available 96° sugar at harvest	
Fall	Spring	Brix	Sucrose	Purity		Per ton of cane	Per acre
pounds	pounds	%	%	%	tons	pounds	pounds
0	0	16.13	12.58	77.99	30.26	166.5	5038
0	36	16.46	12.94	78.61	31.52	172.0	5421
0	60	15.88	12.26	77.20	35.01	161.3	5647
0	96	16.07	12.51	77.85	36.58	165.4	6050
25	0	16.52	13.30	80.51	33.03	179.3	5922
25	36	15.70	12.17	77.52	36.29	160.5	5825
25	60	16.34	12.79	78.27	36.75	169.6	6233
25	96	16.15	12.45	77.09	37.94	163.6	6207
50	0	16.39	12.87	78.52	33.73	171.0	5768
50	36	16.12	12.28	76.18	34.11	160.2	5464
50	60	15.78	12.03	76.24	34.63	157.0	5437
50	96	16.26	12.32	75.77	36.56	160.2	5857

Data are averages of six plots, each five rows wide by 20 feet long. Cane planted and fall fertilizer applied August 12, 1948. Spring fertilizer applied May 6, 1949. Cane harvested November 17-18, 1949. Fertilizer materials used were sulfate of ammonia in the fall, and ammonium nitrate in the spring. The cane was not burned before being weighed; a 7% deduction in weight was made to allow for trash.

profitable response to 60 pounds o
nitrogen, and that as much as 9(
pounds may be desirable on Bald
win soil.

In a source of nitrogen test on
Baldwin soil on Oaklawn Plantation
(table 6) aqua ammonia, sulfate o
ammonia, ammonium nitrate, and
nitrate of soda were compared
using each source of nitrogen in
the following treatments: — 60-0-0
60 - 60 - 0, 60 - 0 - 60, and 60-60-60
Yields of cane and sugar per acre
were significantly increased by al
of the fertilizer treatment used. A
significantly higher yield of sugar
per acre was obtained from the
aqua ammonia than from the sul
fate of ammonia. Phosphate or pot
ash or both, with the nitrogen, had
little effect on yields.

The effects of aqua ammonia, sul
fate of ammonia, ammonium ni
trate, and nitrate of soda, compared
in two experiments on Mhoon soil
are shown in tables 7 and 8. These
included tests of nitrogen alone at

rates of 35, 64, and 100 pounds per acre and of a 64-64-64 mixture. The two experiments were conducted cooperatively by the Soil Fertility Section, Division of Plant Investigation, and the Sugarcane Machinery Project, Division of Farm Machinery. In each test, the yield of cane per acre from the various nitrogen sources did not differ significantly. Yields of cane from the 64-0-0, 100-0-0, and 64-64-64 treatments were significantly higher than from the 35-0-0 treatment. Slightly higher yields of cane were obtained from the complete mixture than from the 64 pounds of nitrogen alone, but the difference was not significant in either test. In the stubble test (table 8), a significantly higher yield of sugar per acre was obtained from the 64-64-64 treatment than from the 64-0-0 treatment.

A test was conducted on Mhoon silty clay loam on Georgia Plantation to study the effects of press mud and nitrogen on yields of cane and sugar. The test, using four varieties of plant cane (C. P. 28-19, 29-116, 29-320, and 34-120), was conducted in cooperation with members of the Pathology Section who were interested in the effects of press mud and nitrogen on root rot. The press mud and nitrogen had no appreciable effect on root rot injury. Yields of cane and sugar per acre were increased somewhat by the use of 50 pounds of nitrogen per acre.

Table 9 shows data from a test on Bowdre silty clay. Nitrogen at rates of 0, 25, and 50 pounds per acre was applied under the cane at the time of planting. Nitrogen was also applied in the spring, at rates of 0, 36, 60, and 96 pounds per acre. The spring application of 36 pounds of nitrogen increased the yields by about 3 tons of cane and 500 pounds of sugar per acre, as compared to the unfertilized controls. No further yield increases were obtained by the use of more nitrogen, either in the spring or as a fall application.

Results of an identical test, on Sharkey silty clay, are shown in table 10. In this test, as in the preceding test, a supplementary fall application of nitrogen did not significantly increase the yield of cane or sugar per acre. Highest yields of cane were obtained by the spring application of 96 pounds of nitrogen per acre, but these yields were not significantly higher than were obtained by the use of 60 pounds of nitrogen per acre. Yields of sugar per acre were not significantly increased by any of the nitrogen applications.

A similar test, on Mhoon silty clay loam, on Mary Plantation, has been carried on for two years. The Co. 290 was harvested this year as first stubble. Nitrogen applications at time of planting had little effect on yields of cane or sugar either in plant or stubble cane. Average cane yields from spring applications of nitrogen were as follows:—No nitrogen, 17.8 tons cane per acre; 36 pounds of nitrogen, 23.8 tons cane; 60 pounds of nitrogen, 25.5 tons cane; and 96 pounds of nitrogen, 26.6 tons cane per acre. Yields of sugar per acre varied from 3600 pounds with no nitrogen to 5000 pounds with 96 pounds of nitrogen per acre.

The Brix, sucrose, and purity figures shown in the tables are data obtained by analysis of the crusher juice. The yields of sugar per ton of cane were calculated by means of the Winter-Carp formula.

The soils in the test fields were classified by Mr. S. A. Lytle, Division of Soil Survey, U. S. Department of Agriculture.

[1] Throughout this paper and in the tables the pounds of the major plant foods, N - P_2O_5 - K_2O, applied per acre, are stated in the order indicated. These values should not be confused with fertilizer grades customarily expressed in this form.

COMPLETE FERTILIZERS FOR SUGAR CANE

By Jack D. DeMent, V. E. Green, Jr. and M. B. Sturgis

Outfield experiments were conducted at nine locations on six different soil types in 1949. There were two experiments with plant cane, four with first stubble and two with second stubble. There was also one experiment with minor elements applied to plant cane.

Data in Table 1 show that no significent increase was obtained from any of the fertilizers applied to plant cane on Commerce clay loam at Idlewild. The lack of response was likely due to the fact that clover had been grown on the field for several years prior to the test.

In the experiment with plant cane on Lintonia silt loam at Billeaud's plantation, Table 2, 40 pounds of nitrogen alone gave an increase of 4.8 tons of cane and 1047 pounds of sugar per acre. No other treatment was better than the nitrogen only.

In two experiments with first stubble cane, Tables 3 and 4, the highest yields were obtained from mixtures containing 80 pounds of nitrogen, 40 pounds of P_2O_5 and 60 pounds of K_2O per acre. In two other experiments on first stubble cane 80 pounds of nitrogen alone proved to be as good as any other treatment.

Highly significant increases were obtained from the use of complete fertilizers in two experiments on second stubble cane. On Iberia silt loam at Dr. J. L. Beyt's farm, Table 7, the highest yield was obtained from the application of 60 pounds of nitrogen, 40 pounds of P_2O_5 and 60 pounds of K_2O. In the other experiment on Iberia silt loam at Glencoe-Vacherie Plantation, a mix-

Table 1.—Effects of fertilizers on the yield of sugar cane and sugar on Mhoon clay loam at Idlewild Dairy Farm, Patterson, Louisiana, 1949

Pounds per acre N-P_2O_5-K_2O	Tons cane per acre	Normal Juice			Pounds 96° sugar		Increase from fertilizer	
		Brix	Sucrose	Purity	Per ton	Per acre	Tons cane	Lbs. sugar
0–0–0	22.42	15.52	11.76	75.74	154.2	3492		
40–25–40	22.39	15.17	11.49	75.77	150.1	3355	—.03	—137
40–0–0	22.43	15.36	11.54	75.13	150.7	3388	.01	—104
60–0–0	23.78	15.78	12.04	76.30	158.5	3770	1.36	278
60–25–40	24.46	14.91	11.02	73.91	142.4	3492	2.04	0
40–0–40	24.66	15.25	12.77	83.74	152.6	3769	2.24	277
40–25–60	24.78	15.31	11.77	76.88	154.3	3912	2.36	420
40–40–0	24.84	15.42	11.73	76.07	153.7	3815	2.42	323
40–40–40	25.31	15.47	11.80	76.27	154.8	3912	2.89	420
60–0–40	25.32	14.96	11.31	75.60	147.0	3720	2.90	228
40–40–60	25.50	15.22	11.61	76.28	151.7	3879	3.08	387

Variety Co. 290 plant cane & fertilized May 16, 1949; harvested December 5, 1949.

There were no significant differences in either tons cane per acre or sugar per acre in any of the fertilizer ratios tested.

Table 2.—Effects of fertilizer on the yield of sugar cane and sugar on Lintonia silt loam at Billeaud's Plantation, Lafayette, Louisiana, 1949.

Pounds per acre N-P_2O_5-K_2O	Tons cane per acre	Normal Juice			Pounds 96° sugar		Increase from fertilizer	
		Brix	Sucrose	Purity	Per ton	Per acre	Tons cane	Lbs. sugar
0–0–0	22.79	15.28	10.90	71.33	140.7	3197		
40–25–0	27.58	16.36	12.24	74.82	161.6	4462	4.79	1265
40–25–60*	27.69	15.39	11.11	72.19	144.1	3995	4.90	798
with lime								
60–0–0	27.86	16.11	12.13	75.29	159.9	4453	5.07	1256
40–0–0	28.96	15.69	11.29	71.96	146.9	4244	6.17	1047
40–0–0								
with lime	30.05	15.23	10.84	71.18	139.6	4177	7.26	980
60–25–40	30.21	16.72	12.24	73.21	161.6	4882	7.42	1685
40–25–40	30.79	15.25	10.77	70.62	138.5	4264	8.00	1067
40–25–40								
with lime	31.00	15.31	10.99	71.78	142.3	4402	8.21	1205
40–40–40	31.01	15.80	11.57	73.23	151.2	4689	8.22	1492
60–25–40								
with lime	31.07	15.66	10.91	69.67	140.9	4375	8.28	1178
40–0–40	31.30	15.57	10.88	69.88	140.4	4379	8.51	1182
40–25–60	31.60	16.18	12.16	75.15	160.4	5068	8.81	1871
40–40–40								
with lime	32.22	15.53	10.75	69.22	138.2	4446	9.43	1249

Variety Co. 290 plant; fertilized May 20, 1949; harvested January 4, 1950.

*Lime applied at the rate of 600 pounds per acre dolomitic lime in the off bar slice.

Least difference necessary for significance was 2.98 tons of cane and 631 pounds sugar.

Table 3.—Effects of fertilizers on the yield of sugar cane and sugar on Baldwin silt loam at Katy Plantation, Franklin, Louisiana, 1949.

Pounds per acre $N-P_2O_5-K_2O$	Tons cane per acre	Normal Juice			Pounds 96° sugar		Increase from fertilizer	
		Brix	Sucrose	Purity	Per ton	Per acre	Tons cane	Lbs. sugar
0–0–0	12.04	15.14	11.99	79.20	157.6	1897	----	----
0–0–0	14.18	16.21	12.84	79.21	171.0	2427	2.14	530
0–0–0	17.49	16.54	13.16	79.57	176.2	3068	5.45	1171
0–40–40	17.87	16.34	13.05	79.87	174.4	3118	5.83	1221
0–0–60	18.06	15.81	12.61	79.76	167.5	3023	6.02	1126
0–0–0	18.26	15.19	11.86	78.08	155.7	2843	6.22	946
0–40–0	18.45	15.69	12.38	78.90	163.6	3023	6.41	1126
0–25–60	18.84	15.45	12.49	80.84	165.5	3119	6.80	1222
0–40–60	19.42	16.48	13.01	78.94	173.7	3374	7.38	1477
0–40–60	19.43	15.81	12.48	78.94	165.4	3209	7.39	1312
0–25–40	20.20	16.05	12.89	80.31	171.8	3363	8.16	1466

Variety Co. 290 1st stubble; fertilized May 11, 1949; harvested December 21, 1949.
Least difference necessary for significance was 2.98 tons cane and 631 pounds sugar.

Table 4.—Effects of fertilizers on the yield of sugar cane and sugar on Commerce clay loam at Little Texas Plantation, Napoleonville, Louisiana, 1949.

Pounds per acre $N-P_2O_5-K_2O$	Tons cane per acre	Normal Juice			Pounds 96° sugar		Increase from fertilizer	
		Brix	Sucrose	Purity	Per ton	Per acre	Tons cane	Lbs. sugar
0–0–0	14.51	17.28	13.08	75.69	175.0	2543	----	----
0–0–0	21.70	17.28	13.35	77.26	179.2	3889	7.19	1346
0–0–0	23.52	17.21	13.07	75.94	174.8	3992	9.01	1449
0–40–60	22.68	16.94	12.88	76.03	171.7	4003	8.17	1460
0–0–60	23.50	17.37	13.15	75.71	176.1	4336	8.99	1793
0–40–0	24.86	17.23	12.86	74.64	171.4	4263	10.35	1720
0–25–40	24.88	17.12	13.55	79.15	176.0	4336	10.37	1793
0–0–0	25.57	16.54	12.33	74.55	162.9	4165	11.06	1622
0–40–40	25.72	17.27	13.11	75.91	175.3	4506	11.21	1963
0–40–60	26.21	17.06	12.93	75.79	172.5	4526	11.70	1983
0–25–60	27.01	16.83	12.53	74.45	166.1	4486	12.50	1943

Variety C. P. 36-105 1st stubble; fertilized April 18, 1949; harvested November 10, 1949.
Least difference necessary for significance was 2.13 tons cane and 483 pounds sugar.

Table 5.—Effects of fertilizers on the yield of sugar cane and sugar on Yahola very fine sandy loam at Meeker Plantation, Meeker, Louisiana, 1949

Pounds per acre $N-P_2O_5-K_2O$	Tons cane per acre	Normal Juice			Pounds 96° sugar		Increase from fertilizer	
		Brix	Sucrose	Purity	Per ton	Per acre	Tons cane	Lbs. sugar
0–0–0	13.56	15.85	12.13	76.53	160.0	2169	----	----
0–0–0	15.09	16.49	12.78	77.50	174.6	2636	1.53	467
0–25–40	17.00	15.97	12.29	76.96	162.4	2761	3.44	592
0–25–60	18.03	14.15	12.93	81.40	172.5	2992	4.47	823
0–40–40	17.21	15.61	11.79	75.53	154.7	2760	3.65	591
0–0–0	17.72	16.94	12.36	72.96	163.6	2947	4.16	778
0–40–60	18.16	16.18	12.68	78.37	168.6	3091	4.60	922
0–40–0	18.54	16.27	12.82	78.79	170.7	3363	4.98	1194
0–0–60	19.55	16.21	12.57	77.54	166.9	3200	5.99	1031
0–0–0	20.81	16.27	12.59	77.38	167.0	3276	7.25	1107
0–40–60	23.64	16.63	13.07	78.59	174.8	4095	10.08	1926

Variety C. P. 29-320 1st stubble; fertilized May 5, 1949; harvested November 14, 1949.
Least difference necessary for significance was 1.64 tons cane and 460 pounds sugar.

Table 6.—Effects of fertilizers on the yield of sugar cane and sugar on Commerce silty clay loam at New Hope Plantation, McCall, Louisiana, 1949

Pounds per acre $N-P_2O_5-K_2O$	Tons cane per acre	Normal Ju,ce			Pounds 96° sugar		Increase from fertilizer	
		Brix	Sucrose	Purity	Per ton	Per acre	Tons cane	Lbs. sugar
0–0–0	18.69	17.12	13.32	77.80	178.6	3342	----	----
0–0–0	24.84	17.20	12.79	74.36	170.4	4232	6.15	890
0–0–0	24.88	16.35	12.61	77.13	175.5	4152	6.19	810
0–25–60	25.33	16.92	13.32	78.19	177.2	4485	6.64	1143
0–40–0	25.73	17.20	13.29	77.27	178.2	4598	7.04	1247
0–40–40	27.23	16.61	12.73	77.64	169.3	4613	8.54	1271
0–0–60	27.39	16.99	13.21	77.75	177.0	4842	8.70	1500
0–25–40	27.55	17.04	13.19	77.41	176.7	4859	8.86	1517
0–40–60	28.80	17.61	13.94	79.16	188.6	5436	10.11	2094
0–0–0	31.05	16.78	12.87	76.70	171.6	5317	12.36	1975
0–40–60	32.15	16.13	12.67	78.55	168.5	5387	13.46	2045

Variety C. P. 34-120 1st stubble; fertilized April 19, 1949; harvested Nov. 16, 1949.
Least difference necessary for significance was 2.75 tons cane and 868 pounds sugar.

Table 7.—Effects of fertilizers on the yield of sugar cane and sugar on Iberia silt loam at Dr. J. L. Beyt's farm, St. Martinville, Louisiana, 1949.

Pounds per acre N-P_2O_5-K_2O	Tons cane per acre	Normal Juice			Pounds 96° sugar		Increase from fertilizer	
		Brix	Sucrose	Purity	Per ton	Per acre	Tons cane	Lbs suga
0–0–0	17.59	18.12	14.21	78.42	193.0	3349	----	----
60–0–0	21.22	18.71	15.38	82.20	212.0	4501	3.63	115
40–0–0	24.66	19.28	15.66	81.22	216.3	5347	7.07	199
60–40–0	25.10	18.48	15.00	81.17	205.7	5169	7.51	182
80–0–0	25.13	18.44	15.01	81.40	209.2	5172	7.54	182
60–25–60	26.73	18.81	15.32	81.45	211.9	5639	9.14	229
80–40–60	28.91	18.97	15.62	82.34	215.9	6244	11.32	289
60–0–60	29.15	18.83	14.97	79.50	205.2	5982	11.56	263
60–25–40	30.42	18.93	15.28	80.72	210.2	6400	12.83	305
60–40–60	33.09	18.67	15.04	80.56	206.4	6832	15.50	348

Variety C. P. 36-105 2nd stubble; fertilized May 7, 1949; harvested December 1, 1949.
The least difference necessary for significance was 3.96 tons of cane and 884 pounds of sugar.

Table 8.—Effects of fertilizers on the yield of sugar cane and sugar on Iberia silt loam at Glencoe-Vacherie Plantation, Baldwin, Louisiana, 1949

Pounds per acre N-P_2O_5-K_2O	Tons cane per acre	Normal Juice			Pounds 96° sugar		Increase from fertilizer	
		Brix	Sucrose	Purity	Per ton	Per acre	Tons cane	Lbs suga
0–0–0	12.14	14.67	11.58	78.94	151.2	1830	----	----
Dolomite	12.20	14.47	11.68	80.72	152.9	1866	.06	3
40–0–0	14.22	14.44	11.48	79.50	149.8	2132	2.08	30
Sul-Po-Mag	15.09	14.12	10.71	75.85	137.9	2198	2.95	36
60–0–0	15.76	15.17	11.50	75.81	148.9	2344	3.62	51
80–0–0	15.97	14.53	11.04	75.98	142.5	2285	3.83	45
60–40–0	18.85	14.73	11.06	75.08	143.4	2703	6.71	87
60–0–60	19.13	14.49	10.93	75.43	141.3	2712	6.99	88
60–25–60	19.23	14.33	11.09	77.39	143.4	2739	7.09	90
40–40–60	19.97	14.59	11.37	77.93	148.1	2959	7.83	112
60–40–60	20.35	14.47	11.19	77.33	145.3	2956	8.21	112
60–40–40	21.01	14.70	11.54	78.50	150.7	3186	8.87	135
80–40–60	22.18	14.17	10.75	75.86	138.1	3055	11.04	122

Variety Co. 290 2nd stubble; fertilized May 6, 1949; harvested October 17, 1949.
Least difference necessary for significance was 2.81 tons cane and 441 pounds sugar.

Table 9. Effects of minor elements* and lime on the yield of sugar cane and sugar on a puddled Sharkey clay loam at Edna Plantation, Lockport, Louisiana, 1949**

Treatment	Tons cane per acre	Normal Ju,ce			Pounds 96° sugar		Increase from fertilizer	
		Brix	Sucrose	Purity	Per ton	Per acre	Tons cane	Lbs suga
0–0–0	14.81	17.67	12.88	72.89	171.7	2702	----	----
60–25–40	12.95	17.81	13.31	74.73	178.6	2262	—1.86	—44
0–0–0 + lime	13.72	17.52	12.59	71.86	167.2	2298	1.09	—40
60–25–40 + lime	14.89	17.45	12.14	69.57	162.2	2720	.08	1
60–25–40 + Es-Min-El	16.03	17.77	13.08	73.61	174.8	2861	1.22	15
0–0–0 + Es-Min-El	17.52	18.18	13.60	74.81	183.2	3002	2.71	30

Variety C. P. 34-92; plant cane; fertilized May 20, 1949; harvested Nov. 30, 1949.
*Minor elements applied at the rate of 50 pounds per acre Es-Min-El.
**Lime applied at the rate of 1000 pounds per acre dolomitic limestone.

ture of 80 pounds of nitrogen, 40 pounds of P_2O_5 and 60 pounds of K_2O was the best treatment.

A test with minor elements was conducted on a puddled Sharkey clay soil underlain at 6 to 8 inches by an organic layer. The results are given in Table 9. The plots were grass and the stand poor. There we some indications that the minor a plication elements may be of valu on such soils, but the data from th one test do not show that benefici effects were obtained.

REPORT OF NEW CANE VARIETIES

E. C. Simon, Associate Agronomist, Louisiana Sugar Experiment Station, March 22, 1950.*

As usual, during 1949 we co-operated closely with the Personnel of the U. S. D. A. Station, Houma, La. After several conferences with the Agronomists, both Stations agreed to send the following nine new sugar cane varieties to their Test Fields.

C. P. 47-61
C. P. 47-64
C. P. 47-91
C. P. 47-99
C. P. 47-109
C. P. 47-126
C. P. 47-166
C. P. 47-191
C. P. 47-193

Seed cane of nineteen of the C. P. 48 series and a foreign imported variety N:Co. 310, were supplied to Smithfield Plantation which serves as the Primary Seed Increase Station for the Louisiana Sugar Experiment Station. The Orange Grove Primary Seed Increase Station was jointly supplied with seed cane by the Station and the Houma Station. Presumably all three Primary Seed Increase Stations have growing on them the same new sugar cane varieties.

Cooperating with the Industrial Committee of The American Sugar Cane League, through Mr. Marcel

TABLE I
PLANT CANE COMPARISON (Small Plots)
1949 Test Field Introductions
Harvested 11-19-49
(Milled on Station Mill, approximately 60% extraction)

Variety	Brix	Sucrose	Purity	Height Feet Mill Cane	Av. Stk. Weight	Tons per Acre
C. P. 47-61	16.20	12.94	79.87	7.50-9.00—Str.-v. sl. cr.	2.94	27.50
C. P. 47-64	14.20	10.89	76.69	8.00-9.50—Straight	2.59	26.65
C. P. 47-91	15.15	11.52	76.04	7.00-9.50—Sl. cr.	2.80	22.45
C. P. 47-99	15.25	11.59	76.00	7.00-9.50—Str.-sl. cr.	2.72	35.05
C. P. 47-109	16.10	12.19	75.71	6.75-8.25—Str.-sl. cr.	2.55	28.80
C. P. 47-126	16.10	12.65	78.57	6.50-9.00—Str.-v. st. cr.	2.41	22.35
C. P. 47-166	14.35	10.38	72.33	7.00-10.00—V. sl. cr.	2.53	33.15
C. P. 47-191	18.25	16.09	88.16	6.00-8.50—Str. v. sl. cr.	2.05	24.10
C. P. 47-193	17.50	14.70	84.00	6.00-8.50—Sl. cr.	2.06	21.10
C. P. 29-116	16.03	12.26	76.48	6.50-9.00—Sl.-some cr.	3.19	32.10
C. P. 34-120	16.40	13.12	80.00	7.50-9.50—Str.-sl. cr.	2.53	25.76
C. P. 29-320	17.35	14.20	81.84	6.50-9.00—V. sl. cr.	2.27	21.28

TABLE II
PLANT CANE COMPARISONS
Harvested 11-17-49
(Milled on Station Mill, approximately 60% extraction)

Variety	Brix	Sucrose	Purity	Height Feet Mill Cane	Av. Stk. Weight	Tons per Acre
C. P. 46-51	13.50	9.09	67.33	8.50-10.00—Sl. cr.	2.95	39.33
Co. 290	15.00	11.69	77.93	6.50-8.50—V. sl.-some cr.	2.57	36.95
C. P. 34-120	15.73	12.14	77.18	8.50-10.00—Sl. some cr.	2.47	35.34
C. P. 46-40	14.80	11.66	78.78	8.00-10.00—Str.-sl. cr.	2.84	34.73
C. P. 45-154	15.03	11.11	73.92	8.50-10.00—Straight	2.70	34.49
C. P. 45-122	14.93	11.41	76.42	7.50-9.50—Str.-sl. cr.	2.96	34.22
C. P. 46-193	16.13	12.17	75.45	7.00-9.00—Some-Cons. cr.	2.29	34.10
C. P. 45-184	16.17	12.91	79.84	8.00-9.50—Sl. cr.	2.45	33.38
C. P. 45-153	15.20	12.03	79.14	7.50-10.00—Str. v. sl. cr.	2.25	32.86
C. P. 44-154	14.37	10.52	73.20	7.50-8.50—V. sl. some cr.	2.33	32.36
C. P. 46-37	15.33	12.42	81.02	7.50-9.00—Straight	2.66	31.81
C. P. 44-153	15.60	11.28	72.31	7.50-8.50—V. sl.-sl. cr.	2.32	31.47
C. P. 45-150	15.20	11.55	75.99	7.00-9.00—Str.-v. sl. cr.	2.66	30.99
C. P. 44-101	15.47	12.14	78.47	7.00-8.50—Str.-v. sl. cr.	2.56	30.95
C. P. 45-73	17.10	14.52	84.91	6.50-9.00—Str. some cr.	2.72	30.49
C. P. 44-132	17.20	14.61	84.94	7.00-8.50—Some cr.	2.07	29.68
C. P. 44-155	16.13	13.08	81.09	7.00-8.75—Str. v. sl. cr.	2.87	28.88
C. P. 29-320	16.40	13.26	80.85	8.00-9.00—Straight	2.36	27.17
C. P. 45-125	16.70	14.39	86.17	6.50-8.00—V. sl. cr.	2.12	27.13
C. P. 29-120	16.50	13.95	84.55	6.00-7.75—Str.-v. sl. cr.	2.38	25.16
C. P. 43-33	16.80	13.99	83.27	6.50-7.50—V. sl. cr.	1.68	22.18

Voorhies, we delivered on December 6, 1949 sufficient mill cane of the newly released C. P. 44-101 and C. P. 44-155 varieties for large scal mill tests. This sugar cane was de livered to the Audubon Sugar Fa

TABLE III
PLANT CANE COMPARISON
Harvested 11-19-49
(Milled on Station Mill, approximately 60% extraction)

Variety	Brix	Sucrose	Purity	Height Feet Mill Cane	Av. Stk. Weight	Tons per Acre
C. P. 36-80	14.67	10.91	74.37	7.50-10.00—Str.-sl. cr.	3.25	39.25
C. P. 43-3	15.80	11.79	74.62	8.00-10.00—Str. some cr.	2.73	38.45
C. P. 34-120	15.40	12.04	78.18	8.50-10.00—V. sl.-sl. cr.	2.69	37.43
C. P. 36-105	16.37	13.17	80.45	7.00-10.00—Str.-sl. cr.	2.56	35.68
C. P. 29-116	14.73	11.12	75.49	7.00-9.50—Str.-sl. cr.	2.99	35.57
C. P. 43-9	14.77	11.29	76.44	8.00-10.00—Str.-sl. cr.	2.79	34.78
C. P. 36-197	15.80	12.62	79.87	7.50-9.50—Sl.-cons. cr.	2.18	33.52
C. P. 36-183	15.37	12.10	78.72	7.00-9.50—V. sl.-some cr.	3.14	31.30
C. P. 36-13	14.03	10.36	73.84	7.00-9.50—Sl.-some cr.	2.94	31.03
C. P. 29-320	15.60	12.49	80.06	7.00-9.50—Str.-v. sl. cr.	2.37	27.60
C. P. 36-19	15.93	12.51	78.53	7.50-10.00—Sl. cr.	2.51	26.13
C. P. 36-179	14.77	10.90	73.80	7.50-9.00—V. sl. cr.	3.14	24.80

TABLE IV
FIRST YEAR STUBBLE CANE COMPARISON
Harvested 11-1-49
(Milled on Station Mill, approximately 60% extraction)

Variety	Brix	Sucrose	Purity	Height Feet Mill Cane	Av. Stk. Weight	Tons per Acre
C. P. 44-155	16.80	14.08	83.81	7.00-7.50—Some cr.	2.88	34.78
C. P. 36-13	14.50	11.06	76.27	7.00-8.50—Sl. cr.	2.96	31.62
C. P. 36-183	15.30	12.19	79.67	7.00-7.75—Sl.-some cr.	2.72	31.44
C. P. 43-9	15.60	12.55	80.45	7.50—8.50—Sl. cr.	2.61	29.44
C. P. 44-101	15.60	12.72	81.54	6.75-7.50—V. sl. cr.	2.64	28.21
C. P. 29-116	15.40	11.82	76.75	6.50-7.50—Some cr.	2.85	27.70
C. P. 43-3	15.90	12.31	77.42	7.00-7.50—V. sl. cr.	2.72	27.66
C. P. 36-105	16.20	13.33	82.28	7.00-8.50—Sl. cr.	2.71	27.30
C. P. 36-19	16.30	13.07	80.18	7.50-9.50—Sl. cr.	2.22	27.30
Co. 290	14.90	11.99	80.47	6.00-6.50—Sl. cr.	2.72	27.08
C. P. 34-120	15.20	12.14	79.87	6.25-8.50—Sl. cr.	2.38	26.64
C. P. 36-197	17.00	14.52	85.41	6.00-7.75—Sl. cr.	1.74	26.28
C. P. 37-5	15.60	12.58	80.64	5.50-6.50—Sl. cr.	2.00	25.95
C. P. 29-320	16.40	13.41	81.77	6.50-7.50—V. sl. cr.	2.03	25.52
C. P. 36-179	15.70	12.34	78.60	6.50-7.50—V. sl. cr.	1.79	23.96
C. P. 34-92	16.40	13.48	82.19	6.00-6.75—Sl. cr.	2.01	21.05
Co. 281	13.90	11.01	79.21	6.50-7.00—Sl. cr.	2.04	20.73
C. P. 43-47	15.60	12.85	82.37	6.50-7.50—Straight	2.38	20.15
C. P. 43-33	15.50	12.57	81.10	6.00-7.00—V. sl. cr.	1.63	18.88
C. P. 36-203	17.60	14.64	83.18	6.00-7.50—V. sl. cr.	2.63	18.15
C. P. 29-120	15.50	13.00	83.87	6.00-6.50—V. sl. cr.	2.09	17.75

TABLE V
Harvested 11-1-49
(Milled on Station Mill, approximately 60% extraction)

Variety	Brix	Sucrose	Purity	Height Feet Mill Cane	Av. Stk. Weight	Tons per Acre
C. P. 45-122	14.90	11.74	78.79	6.50-8.50 Sl. cr.	2.70	40.84
C. P. 44-154	14.50	11.38	78.48	6.50-7.50—Sl.-some cr.	2.22	38.66
C. P. 44-72	16.00	13.40	83.75	6.50-7.50—Cr. tops	2.50	36.41
C. P. 43-28	14.00	10.71	76.50	8.50-9.50—Some cr.	2.39	36.30
C. P. 34-120	15.50	12.38	79.87	8.50-9.50—Cr. tops	2.27	35.86
C. P. 45-153	16.00	13.12	82.00	8.00-8.50—Sl. cr.	2.38	35.25
C. P. 43-49	12.50	8.28	66.24	8.50-9.00—Some cr.	2.05	35.03
C. P. 46-51	13.20	9.45	71.59	7.50-9.00—Sl. cr.	3.09	33.07
C. P. 36-80	14.40	11.33	78.68	6.25-8.50—V. sl. cr.	2.28	33.21
C. P. 45-150	14.50	11.30	77.93	7.50-8.00—V. sl. cr.	2.07	32.13
C. P. 46-193	15.80	12.53	79.30	6.50-7.50—Sl. cr.	1.93	30.67
C. P. 29-116	13.20	9.76	73.94	7.00-7.50—Some cr.	2.58	30.53
C. P. 29-320	15.30	12.31	80.46	7.00-8.00—	1.82	29.19
C. P. 45-184	15.40	12.57	81.62	6.25-8.75—Some cr.	1.99	27.84
C. P. 44-92	15.00	12.55	83.66	7.50-8.00—V. sl. cr.	2.26	27.26
C. P. 46-40	14.70	11.60	78.91	7.50-8.25—Sl. cr.	2.63	27.04
C. P. 46-37	14.60	12.13	83.08	6.50-7.50—Straight	1.84	26.93
C. P. 45-73	16.10	13.33	82.79	6.50-7.50—Sl. cr.	2.31	26.68
C. P. 44-153	15.00	11.45	76.33	7.50-8.00—	1.79	25.95
C. P. 45-154	14.40	10.81	75.07	7.00-8.00—Sl. cr.	2.69	25.81
C. P. 43-32	14.40	11.30	78.47	7.50-8.75—V. cr. tops	2.82	25.46
C. P. 44-69	15.80	13.40	84.81	7.00-8.50—Sl. cr.	2.33	25.19
C. P. 36-105	15.80	12.84	81.27	7.00-8.00—V. sl. cr.	2.11	24.18
C. P. 29-120	15.40	12.26	79.61	6.00-7.00—	1.96	24.14
C. P. 44-132	16.20	13.45	83.02	8.00-8.50—Sl. cr.	2.13	23.30
C. P. 45-125	15.90	13.82	86.92	6.50-7.50—Sl. cr.	2.02	22.03

tory for the milling and processing experiments under sponsorship of The American Sugar Cane League.

Cooperating further, we supplied Mr. Voorhies with seed cane of the varieties to be used in the 1950 milling and processing experiments. These varieties were C. P. 43-33, C. P. 43-47, C. P. 44-154, C. P. 45-122, C. P. 45- 184, and C. P. 47- 193. Our data on these varieties are given in Tables II, III, IV, V, and VI.

Preliminary data on a small plot basis are given in Table I for the nine C. P. 47 varieties sent to the Test Fields in the fall of 1949.

The relative performances of the newly released C. P. 44-101 and C. P. 44-155 varieties are shown in Tables II, IV, and VI.

Particular attention is called to the comparatively high yield and low sucrose content of C. P. 46-51 (Tables II and V).

*Assisted by F. W. Berthelot, Jr.

TABLE VI
SECOND YEAR STUBBLE CANE COMPARISON
Harvested 10-14-49
(Milled on Station Mill, approximately 60% extraction)

Variety	Brix	Sucrose	Purity	Height Feet Mill Cane	Av. Stk. Weight	Tons Per Acre
C. P. 43-9	13.80	10.45	75.72	6.50-7.50—	1.68	27.48
C. P. 44-155	15.20	11.62	76.45	6.00-7.50—Sl. cr.	2.46	27.15
C. P. 43-47	14.20	10.60	74.65	6.50-7.50—	2.23	26.61
C. P. 36-183	15.10	11.64	77.09	6.00-7.00—	2.44	25.66
C. P. 43-3	14.70	10.59	72.04	6.00-7.00—Sl. cr.	2.10	24.76
C. P. 43-33	14.90	11.33	76.04	5.50-7.00	1.63	24.32
C. P. 38-26	14.70	11.33	77.07	5.00-7.50—Sl. cr.	2.16	24.25
C. P. 34-120	14.70	11.32	77.01	5.50-7.50—Sl. cr.	1.94	23.92
C. P. 36-179	14.50	10.46	72.14	5.50-7.00—	1.70	23.49
C. P. 29-320	15.70	12.60	80.25	5.50-8.00—	2.09	22.65
C. P. 36-105	15.60	12.36	79.23	6.50-7.50—	2.32	21.74
C. P. 36-178	14.20	10.55	74.29	5.50-7.00—Sl. cr.	2.11	21.05
C. P. 36-19	15.30	11.95	78.10	6.00-7.50—Sl. cr.	1.71	19.57
C. P. 36-197	15.90	13.25	83.33	5.50-7.00—Sll cr.	1.59	19.28
Co. 290	12.80	9.07	70.86	5.00-6.50—	2.18	18.84
C. P. 36-13	14.50	11.08	76.41	5.50-7.00—	2.19	18.33
C. P. 29-116	13.80	10.15	73.55	5.00-6.50—	2.46	16.41
C. P. 29-120	13.20	9.75	73.86	5.00-6.50—	1.83	14.52
C. P. 37-5	14.10	10.73	76.10	5.00-6.00—	1.85	13.50
C. P. 36-203	15.80	11.96	75.70	5.50-7.00—	2.07	10.31
Co. 281	13.90	10.55	75.90	4.50-5.50—	1.31	9.87

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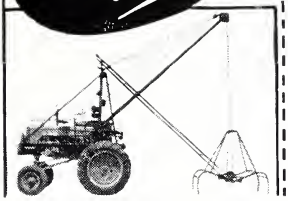

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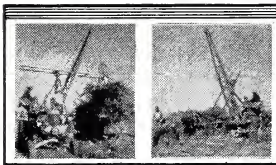

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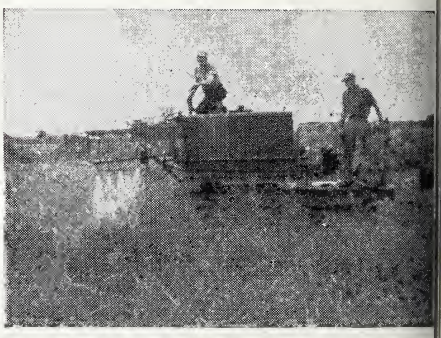

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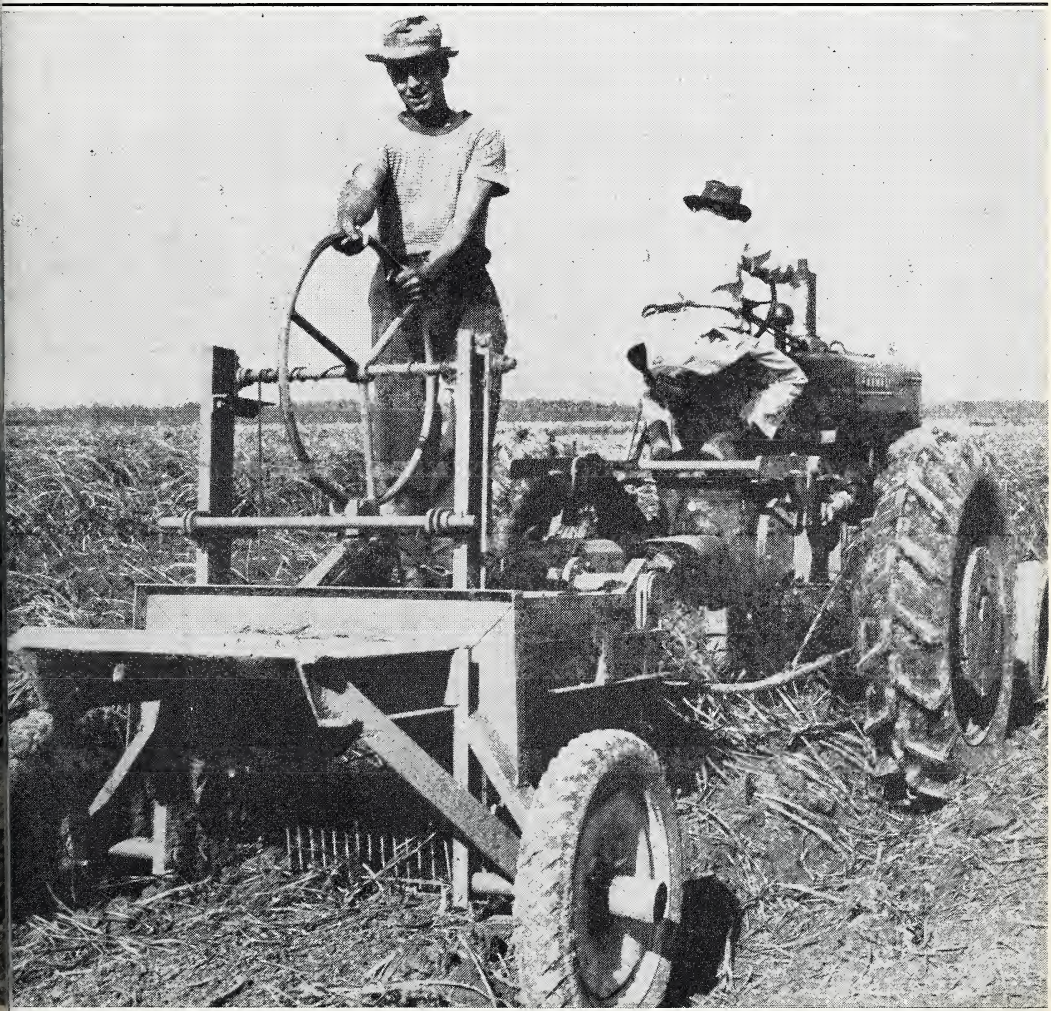

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DISPOSAL OF BORERS OVERWINTERING IN SHOOTS OF SUMMER PLANTED CANE

By J. W. Morris and R. M. Ramp, Bureau of Plant Industry, Soils and Agricultural Engineering, and E. K. Bynum and W. E. Haley, Bureau of Entomology and Plant Quarantine, Agr. Res. Adm., U. S. D. A.[1]

There are two rather definite periods for planting sugarcane in Louisiana, summer and fall. The period for summer planting usually starts about August 1 and extends for about 15 days. The weather, labor supply, and growth of the cane are factors that may influence the starting and ending of the summer-planting period. The proportion of cane that is summer-planted has been greatly increased during recent years and it is highly probable that this trend may continue for some time. The increased acreage of summer-planted cane makes the disposal of the young cane shoots so as to destroy the overwintering borers an important problem. Large numbers of borers overwinter in shoots growing from cane planted in summer, whereas in a normal year very few or none overwinter in shoots growing from cane planted at the usual time in the fall. However, spreading the planting over a longer period permits the use of the short labor supply to better advantage. Since summer-planted cane produces many more shoots than fall-planted cane, less seed-cane should be needed per acre. The larger number of shoots per cane should to a large extent compensate for the shorter cane that would be available for seed at summer-planting time and for the use of less seed cane per acre than is ordinarily used for fall planting.

Shoots from summer-planted cane harbor many overwintering sugarcane borers, *Diatraea saccharalis* (F.). Summer-planted cane quickly produces young shoots that make considerable growth before they are killed by frost. Some of the earliest shoots may even develop a few joints and many of them are not killed to the ground. The young shoots become infested by the sugarcane borer during the fall and many borers pass the winter successfully in those that have begun to form joints. Under normal conditions more borers overwinter in shoots from summer-planted cane than in any other material found on sugarcane plantations. Disposal of these shoots before the borers in them produce moths to infest the new shoots that ordinarily appear late in the winter and early in the spring is therefore one of the best ways of reducing borer infestation.

The most practical method of handling the shoots from summer-planted cane has been to shave them off close to the ground during the latter half of February or early in March and cover them thoroughly in the middles with at least 2 inches of soil. Spring cultivation of the young cane should be delayed as long as conditions will permit, in order to avoid uncovering the shaved shoots and prevent emergence of the moths formed from the overwintered borers in them. Examinations have shown that a large percentage of the borers remain alive in the buried material and that the only way to reduce the spring emergence greatly is to keep the infested material covered with soil to a depth of at least 2 inches. Although the control measure just described is practiced in many fields, examinations for eggs and first-generation borers have shown that the population is usually higher in fields of summer-planted cane even after

(Continued on page 396)

SUGAR QUOTAS INCREASED

The U. S. Department of Agriculture August 23rd announced an increase of 850,000 short tons, raw value, in the supply of sugar that will be available in the continental United States under 1950 sugar quotas. This increases the supply for the year to 8,700,000 short tons, raw value, compared with 7,580,000 tons distributed in 1949. This action is taken because of the high distribution of sugar in recent weeks. The 1950 supply now exceeds by over 1,100,000 tons the quantity distributed in 1949. The largest quantity ever distributed domestically in any year was 8,070,000 tons in 1941 when heavy buying for stocks occurred throughout the year.

Under the provisions of the Sugar Act, 838,440 tons would normally have been provided by Cuba and 11,560 tons by other foreign countries. Only 600,000 tons of sugar were available in Cuba, and the Commodity Credit Corporation considered it essential to leave approximately 162,000 tons in Cuba to meet shipping requirements early next year and possible other needs. Accordingly, 400,000 tons of the quantity Cuba would have received have been reallocated to domestic areas as follows: Puerto Rico, 150,545 tons; domestic sugar beet area 100,000 tons; Hawaii, 98,594 tons; mainland cane sugar area, 46,861; Virgin Islands, 4,000 tons.

It was announced also that the quotas for Puerto Rico are now large enough so that allotment of its 7950 raw sugar quota for shipment to the mainland and the local consumption quota is unnecessary. The allotment of the portion of the Puerto Rican quota which may be brought into the mainland as direct consumption sugar remains in effect and certification continues to be required before any such sugar may be entered.

Basic quotas for all areas resulting from the requirements determination as increased today and adjustments resulting from proration of deficits, are shown in the table below:

BASIC QUOTAS, PRORATION OF DEFICITS AND ADJUSTED QUOTAS FOR 1950
(short tons, raw value)

Production area	Basic Quota	Proration of Deficits in Quotas		Adjusted Quota
		First and Second Philippine	Cuba	
Domestic beet	1,800,000	--------	100,000	1,900,000
Mainland cane	500,000	--------	46,861	546,861
Hawaii	1,052,000	--------	98,594	1,150,594
Puerto Rico	910,000	--------	150,545	1,060,545
Virgin Islands	6,000	--------	4,000	10,000
Philippines	982,000	(450,000)	--------	532,000
Cuba	3,403,080	427,500	(400,000)	3,430,580
Other foreign countries:				
Belgium	277.7	88.7	--------	366.4
Canada	532.4	170.0	--------	702.4
China and Hongkong	271.9	86.8	--------	358.7
Czechoslovakia	248.5	79.3	--------	327.8
Dominican Republic	6,292.8	4,031.0	--------	10,323.8
Dutch East Indies	199.5	63.7	--------	263.2
Guatemala	316.0	100.9	--------	416.9
Haiti	869.7	557.1	--------	1,426.8
Honduras	3,239.2	1,034.2	--------	4,273.4
Mexico	5,692.0	3,646.2	--------	9,338.2
Netherlands	205.6	65.6	--------	271.2
Nicaragua	9,645.2	3,079.4	--------	12,724.6
Peru	10,448.1	6,718.2	--------	17,206.3
Salvador	7,746.1	2,473.1	--------	10,219.2
United Kingdom	331.0	105.6	--------	436.6
Venezuela	273.7	87.3	--------	361.0
Other countries	40.6	12.9	--------	53.5
Unallotted	250.0	100.0	--------	350.0
Subtotal	46,920.0	22,500.0	--------	69,420.0
Total	8,700,000			8,700,000

CUBAN SUGAR PURCHASE CONCLUDED

The Secretary of Agriculture, Charles F. Brannan, announced August 4th the conclusion of procurement by Commodity Credit Corporation of 600,000 short tons of Cuban sugar at a price of 5.38 cents per pound f.a.s. Cuban ports.

Cuba's import needs of wheat, flour, rice and lard were also amply discussed during negotiations. Cuba was assured of the availability of U. S. Government stocks of wheat, rice, eggs, milk, butter and other commodities held in Commodity Credit Corporation inventories to meet her needs. It was mutually agreed that the present commercial stocks and potential supply of lard in the United States would be ample to meet Cuba's import requirements.

At the conclusion of the discussions Secretary Brannan said, "This is another example of the splendid cooperation that has always existed between the United States and Cuba."

The Ambassador of Cuba, Dr. Luis Machado, announced August 4th the closing of the negotiations of the sale of 600,000 short tons of Cuban sugar to the United States Government at the price of 5.38 cents per pound, f.a.s. Cuban ports. The purchase of this sugar is being made by Commodity Credit Corporation, an official agency of the American Government, and insures the supplying of all of the sugar needs of the United States for the present year.

In fair reciprocity the American Government has given assurances to supply Cuba with the articles of prime necessity usually imported from the United States especially in regard to wheat, flour, rice and lard. There are in the hands of the Commodity Credit Corporation very large stocks of food products, and as soon as the Cuban Government determines the quantities required by Cuba the necessary arrangements will be made to place them at Cuba's disposal.

A PRESS RELEASE

The American Sugar Cane League met recently and expressed extreme regret that the Secretary of Agriculture and the Sugar Branch have acted so hurriedly, without any consultation with the domestic producing areas, regarding their intentions and plans to buy the balance of the Cuban Sugar crop or any of the details involved.

The League expressed dissatisfaction with the action of the Secretary of Agriculture in going outside the Sugar Act to accomplish its purposes.

The Sugar Act is supposed to provide for any and all problems of the Industry. This Sugar Act was developed by cooperation of all branches of the industry, the government, and of Congress. Emergency situations were anticipated and provided for. Certainly the Act provides against any extraordinary demand by the simple expansion of quotas and should conditions warrant the consideration of other means then the domestic industry should be consulted. The Act. was followed by increasing quotas 350,000 tons. But the program to purchase surplus sugars for the account of CCC or the Department of Agriculture has not followed the Sugar Act. This sugar is to be allocated to refiners at some price decided by the Secretary of Agriculture.

The Industry has asked for a commitment that no sugar will be sold "at less than what was paid for it." By the action of the Department with regard to Cuba, as well as Hawaii, Puerto Rico and the

Virgin Islands the industry in the Mainland Beet and Cane Areas is left completely without protection or any provision whatsoever by which the Sugar from Louisiana and Florida or any beet producing States is guaranteed or assured of a definite price or protection of its welfare.

We stress the fact that we have Section (201) in the Sugar Act, but this provision enacted by Congress has been ignored and bypassed by the Sugar Branch in the past. Today the price is 8.25¢ per pound of Refined Sugar and 6.25¢ per pound of raw sugar although the Consumers Price Index is 170.2% which should mean 8.92¢ for Refined Sugar and 6.70¢ for raw sugar. Congress has mandated the Secretary of Agriculture to follow this Index in bringing about prices for refined (and raw) sugar.

The Industry merely asked for the protection and maintenance of its welfare and we are requesting our Senators and Congressmen in Washington to insist upon the Sugar Act in all of its provisions being carried out faithfully by the Sugar Branch and the Secretary of Agriculture and full consultation with representatives of the Industry whenever emergency action is deemed necessary.

DISTRIBUTION OF THE GOVERNMENT PURCHASED CUBAN SUGAR

The following letter dated August 18th concerning the distribution of raw sugar from Cuba is printed with the full permission of Lamborn & Company, Inc., sugar brokers.

"Yesterday in Washington, talks were held between Government and refiners' officials concerning the method to be followed in distributing the 600,000 tons of Government-owned Cuban sugars to domestic refiners. As a result, some of the details have been clarified.

1. A refiner wishing to obtain Government sugar will apply for such sugars to the Government.

2. After the Government approves the purchase, it will then contact the Cuban Sugar Stabilization Institute (ICEA) and arrange the release of the sugars to the refiner. The U. S. Government will then step out of the picture.

3. The ICEA will assign the contract to a specific raw sugar producer. Thus the contract for the sugar passes into private hands—the raw sugar producer and the refiner.

4. These sugars will be priced at 5.38¢ f.a.s. Cuba, (this is the price at which our Government originally agreed to purchase the sugars from Cuba), hence there will be no change made by the Governmen for its service in buying the sugars

5. The chartering of steamers t carry the sugars to refiners will b entirely the responsibility of an for the account of the individua refiners themselves.

6. In view of the fact that ocea freight differentials exist betwee Northside and Southside shippin ports in Cuba, the ICEA is to as sign *sellers* to fulfill the individua contracts in such a way that, inso far as is possible, no refiner i either benefited or prejudiced in th long run as a result of these por differentials.

7. Before refiners can have Gov ernment sugars released to them they must certify that they canno obtain free sugars from privat sources in the shipment or arriva position required, at a price-equiva lent as low as or lower than th Government price of 5.38¢ f.a.s Cuba.

8. Of course, it is to be assume that no refiner will be permitted t

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CHARGES AGAINST 1950 SUGAR QUOTAS THROUGH JULY 31, 1950

Note: This Release was issued before the latest quota release printed on page 388.

The U. S. Department of Agriculture issued August 15th its monthly report on the status of the 1950 sugar quotas for the various sugar-producing areas supplying the United States market.

The report shows that the quantity of sugar charged against the quotas during January-July amounted to 4,855,007 short tons, raw value (partly estimated) as compared with 4,478,335 tons charged against such quotas during the same period of last year.

The report includes sugar from all offshore areas recorded as entered or certified for entry, before August 1, 1950, sugar marketed by the beet area, and an estimate of the quantity marketed by the mainland cane area. The figures are subject to change after final data are available.

The quantities (determined or estimated, as indicated) charged against the quotas for the various areas and the balances remaining are shown in the following tables.

Table 1—Status of 1950 Sugar Quotas as of July 31, 1950

Area	1950 Quota	Quota Charge	Quota Balance	
			Total	Maximum for Direct-consumption
	(short tons—raw value)			
Domestic beet	1,800,000	1,036,739[1]	763,261	763,261
Mainland cane	500,000	144,511[2]	355,489	355,489
Hawaii	1,052,000	713,094	338,906	9,024
Puerto Rico	910,000	656,570	253,430	29,820
Virgin Islands	6,000	6,000	0	0
Philippines	532,000[3]	341,238	190,762	59,019
Cuba	2,992,140	1,924,781	1,067,359	98,867
Other Foreign Countries[4]	57,860	32,074	25,786	16,497
Total	7,850,000	4,855,007	2,994,993	1,331,977
Liquid Sugar	(Wine gallons of 72% total sugar content)			
Cuba	7,970,558	7,373,574	596,984	596,984
Dominican Republic	830,894	0	830,894	830,894

[1] Preliminary. [2] January-June, 140,885; July, estimated same as July 1949. [3] Statutory quota less deficit of 450,000 tons. [4] See Table 2 for individual countries.

Table 2—Foreign Countries Other Than Cuba and The Republic of the Philippines

Country	1950 proration of quota	Quota Charge[1]	Quota Balance	
			Total	Maximum for Direct-consumption
	(Pounds—raw value)			
China and Hongkong	582,684	49	582,635	409,030
Dominican Republic	17,530,176	17,530,176	0	0
Haiti	2,422,748	1,128,489	1,294,259	180,066
Mexico	15,856,667	3,718,740	12,137,927	8,401,436
Nicaragua	29,671,056	12,493,646	8,177,410	2,018,667
Peru	29,216,872	29,216,872	0	0
Other Countries	28,739,797[2]	379	28,739,418	21,485,226
Unallotted Reserve	700,000	58,785	641,215	499,112
Total, pounds	115,720,000	64,147,136	51,572,864	32,993,537
tons	57,830	32,074	25,786	16,497

[1] Under Sec. 212 of the Sugar Act of 1948, 2,737 pounds from Canada; and 689 pounds from the United Kingdom have been entered or certified without charge to quota.

[2] This total includes the following (in pounds): Belgium, 595,211; Canada, 1,141,054; Czechoslovakia, 532,505; Dutch East Indies, 427,505; Guatemala, 677,309; Honduras, 6,942,058; Netherlands, 440,612; Salvador, 16,601,034; United Kingdom, 709,192; Venezuela, 586,503; Other countries, 86,814; against which 379 pounds from Colombia have been charged.

THE ST. JAMES PARISH FIELD DAY

by A. W. Dykers

We attended the St. James Parish Field Day on August 10th and, as was to be expected, had a fine time. By "we" I have reference to the head men of the American Sugar Cane League and me. The League top men were out in strength with Mr. Voorhies, Mr. Bourg, and Doctor Steib all present. In case anyone is wondering why they let me tag along I will explain that it was because they felt that I needed some country fresh air in my semi-collapsed lungs and that I could use a lot of hot sunshine on my pale indoor complexion. I greatly appreciate their consideration.

It must be noted, however, that Doc Steib seemed to be the only one of the bosses who displayed any enthusiasm about a double exposure to what was earlier referred to as "the good old sunshine" and I have a feeling that the Doc was trapped in one of those cane carts and couldn't get out. Of course he denies this rather vehemently claiming that he was practically raised in a cane wagon and that, furthermore, he could not be anything but at home in the St. James sun because he was born just a few miles away. I still have my doubts, but must report that he stayed right in there pitching and came back with very glowing reports concerning the many field demonstrations that he and his companions viewed on their tour.

I would be able to give an eye witness account of this field trip myself if it were not for the fact that by the time I reached stop number two I felt that my health had been restored to a point where any more country sunshine would make me dissatisfied with my lot in the City and I did not want to deliberately run this risk. I am grateful to Dr. Dugas for giving me a lift back to our starting point before I became so enthusiastic about the outdoor life that I quit my job. After all, I have responsibilities with a wife and two children depending upon me for food and etc.

When we advised you that this Field Day was on the August agenda we said that the demonstrations were going to be good, and we are happy to report that Doc Steib says they were just that. The following is what he saw:

1. Johnson Grass Control By Sheep, *C. L. Hill, Commentator;* 2. Sugarcane Borer Control, *A. L. Dugas, Commentator;* 3. Sugarcane Fertilizer Demonstration, *T. H. Milliken, Commentator;* 4. Johnson Grass Control By Chemicals, *E. R. Stamper, Commentator;* 5. U. S. D. A. Plots, *L. Hebert and R. Matherne, Commentators;* 6. Hybrid Corn, *A. G. Kilgore, Commentator;* 7. Released Varieties, *C. B. Gouaux, Commentator;* 8. Pasture and Livestock Rotation, *W. E. Monroe, Commentator.* And 9. Machinery Demonstrations. (The machinery companies cooperating in the Field Day were: Castagnos Cane Loader Co., Inc., Boyce-Harvey Machinery, Inc., Dunham Pugh Co., Inc., Assumption Farm Suppliers & Chemical Co., Southern Equipment and Tractor Co., Crescent Welding Co., Mattingly Tractor Co., B. Lemann & Bros., Inc., Lafourche Tractor Co., Zeigler Flying Service, Jackson Machinery Co., and the Thomson Machinery Co.)

We also said that the hospitality was in true southern style and I can personally vouch for this latter statement. Those gentlemen in St. James Parish really know how to treat their visitors. We will give you a rapid summary of what took place after the cane carts all came home to show you what you missed if you were not present.

There were close to five hundred people in the gymnasium of the St. James High School when word was

passed around that luncheon was being served. In less than ten minutes we were all eating sandwiches and enjoying soft drinks. That kind of service can't be beat.

After everyone had all the food and drink they wanted the gathering retired to the auditorium of the School where two entertainers from New Orleans (male) sang songs and generally kept the crowd happy. Then Mr. Joseph Lamandola, County Agent of St. James Parish, who was the master of ceremonies, announced that the Reverend Harrison Martin would give the Invocation, and the meeting was started, as was fitting, by offering thanks to Almighty God.

Following the Invocation, Mr. Charles A. Becnel, President of the West St. James Parish Farm Bureau, welcomed the guests and then Mr. F. A. Graugnard, Jr., Manager of the St. James Sugar Cooperative and Chairman of the morning program, introduced the guest speaker. This was Mr. Clarence J. Bourg, Manager of the Washington Office of the American Sugar Cane League.

Mr. Bourg made a special trip from Washington to tell the farmers of St. James Parish what is taking place in Washington and to post them on the many problems that confront the Louisiana sugar industry. He spoke for about half-an-hour and received a thunderous round of applause at the finish of his talk.

Next on the program came Dr. W. G. Taggart, Director of the Louisiana State Experiment Station, who made a few well chosen remarks about the work of the Station in behalf of the cane farmer, and he was followed by Dr. Norman E. Efferson, Farm Economist at L. S. U., who spoke on the economic prospects of the coming grinding season.

About this time Mr. Lamandola ruled it was time to sing and a peppy leader from L. S. U. jumped onto the platform and had us all vocalizing about how we had been "working in the cane fields all the live long day", which, in my case, was a slight exaggeration.

Mr. W. T. Cobb, beef cattle specialist of L. S. U., was the next speaker. He humorously brought home his contention that the cane farmers were missing a good bet if they did not raise beef cattle on the acres they rejuvenate between cane crops.

Dr. I. L. Forbes, Assistant Director of the Louisiana State Experiment Station, closed the meeting with a serious talk on the opportunities offered by agriculture to any young man with determination to succeed.

The St. James fathers could have wrapped up the day right here and it would have made a neat package, but the *piece de resistance* was yet to come. Mr. Lamandola invited all of us to a barbecue at the camp of Mr. Guy Caire, and what a spread this was!

(Continued on next page)

ANNUAL FIELD DAY

Louisiana Sugar Planters

SEPTEMBER 19, 1950

I.

MORNING PROGRAM

9:30 A. M.

Agronomy-Horticulture Building, Louisiana State University.

Short reports of progress from members of the Louisiana Agricultural Experiment Station staff.

II.

AFTERNOON PROGRAM

St. Delphine Plantation (South of Addis)

Field demonstrations of land smoothing and ditching with newly developed machines.

•

Observations on weed control experiments.

Mr. Caire's camp is located about a mile back from the River in one of those picturesque settings that city folks hear about but seldom have the pleasure of seeing. Under tall shade trees that cover an expanse of St. Augustine Grass as big as a city block we were treated to all the drinks, both hard and soft, that we dared consume and with these we washed down huge plates of barbecued beef, potato salad, and all the trimmings that go with a top-notch barbecue dinner. This was a wonderful climax to a very enjoyable day. The Doc and I left about half-past-five and headed for home.

In closing I feel that I should pass along a little friendly warning. The constabulary in the Hahnville-Luling section definitely believe in signs. When a highway marker says slow down to twenty-five miles an hour, they take it literally. So do Doctor Steib and I - - - now.

LABOR FOR GRINDING

1. In view of the growing manpower needs of the country because of the War in Korea, it appears that labor for grinding may be in short supply.

2. It is suggested that you ask the Louisiana Employment Service to contact the labor agents who have secured help for you in the past and find out if they will supply labor again this year.

3. If you are not sure of your usual labor supply, give the Louisiana Employment Service an order for the number of laborers you will need.

4. At the same time if you have any doubts about your ability to secure domestic labor and decide that it may be necessary to use foreign labor (Jamaicans) you should immediately place an order for these foreign laborers with the nearest office of the Louisiana Employment Service.

The office of the American Sugar Cane League in New Orleans should be notified of the number of foreign laborers for which you have applied.

Upon receipt of advice that you have applied for foreign labor, information will be sent you showing the steps to take to secure this labor.

Labor Committee,
Chas. Farwell, Chairman

NO CHANGE IN FLORIDA SUGARCANE PRICE DETERMINATION

The U. S. Department of Agriculture announced on August 24th that the prices for 1950 crop Florida sugarcane that must be paid to producers by processors who apply for Sugar Act payments will be on the same basis as for the 1949 crop.

The basic price for standard sugarcane will be $1.10 per ton of cane for each 1 cent per pound of the price of raw sugar. In accordance with established settlement practices, the price determination provides that the conversion of actual sugarcane to standard sugarcane shall be made on the basis of the average sucrose content of all sugarcane delivered (except salvage sugarcane) by a producer during the basic pricing period.

The price determination announced today was made following investigations and a public hearing as required by the Sugar Act of 1948. This Act requires that a determination be issued each year establishing fair and reasonable prices for sugarcane that must be paid to producers by processors who apply for Sugar Act payments.

FERTILIZER

Our Washington offices advises that the American Cyanamid Company will probably not be able to furnish any Ammonium Nitrate to the Louisiana Sugar Belt for use in 1951.

Among others, the following companies should be in a position to

meet the Louisiana sugar cane producers needs.

Lion Oil Co., Eldorado, Arkansas.
Spencer Chemical Co., 610, Dwight Bldg., Kansas City, Missouri.
Keller-Weber Co., Lake Charles, Louisiana.
Phillips Chemical Co., Bartlesville, Oklahoma.

It is suggested that the sugar cane producers place orders for their requirements for as prompt delivery as can be arranged to make absolutely certain that deliveries can and will be made.

DISTRIBUTION

(Continued from page 390)

take extremely large quantities of Government sugars at any one time but rather will be held to purchasing on a gradual basis.

9. Applications by refiners for Government sugars will be considered starting August 30.

It is extremely difficult to determine exactly what raw sugar price level will result from this situation. The problem lies in the fact that Government sugars will move on f.a.s. terms, hence ocean freight and insurance will be for the account of the refiners. (It is, as you know, normally the custom in the sugar trade for refiners to purchase Cuban sugars on a c.i.f. basis).

Based on *present* ocean freight rates, the delivered price of the Government sugars would be built up as follows:

5.38¢	f.a.s.
.35	ocean freight from *one northside* Cuban port to North Hatteras refiners.
.01	approximate insurance premium
.50	duty
6.24¢	duty-paid, delivered North Hatteras.

Of course, as stated above, freight rates differ between ports in Cuba and between the north and south sides of the Island. As indicated in the foregoing build-up, we have assumed loading at *one northside* Cuban port. When sugars are loaded into a vessel from *two northside* ports, the rate is about 36¢. In the case of a loading at *one southside* Cuban port, the rate is approximately 37¢, and at *two southside* ports, the rate is 38¢. The delivered cost to refiners would, then, vary accordingly. Refiners will receive sugars at both north and southside ports.

Therefore, *if freight rates remain at present levels,* it would seem logical to assume that the Government's action would tend to peg the raw market for the balance of 1950 at a level within a few points of 6.25¢, duty-paid, delivered North Hatteras—which is very close to the present spot market of 6.28¢. Needless to say, it is impossible to predict at this time the course of ocean freight rates.

Since refiners, before purchasing Government sugars, must certify that they cannot do as well, or better, pricewise, by purchasing through private sources, *it would seem that these free sugars will be sold at prices equal to the Government level, or very nearly so for the balance of* 1950. Should the *private* owners of Cuban sugars attempt to hold out for higher prices, the refiner presumably could then simply secure U. S. Government sugars at 5.38¢ f.a.s. In other words the duty-paid equivalent of this level would seem to be established as a ceiling for raws, barring freight rate changes, for the rest of the year.

A duty-paid raw price of approximately 6.25¢, when applied against the 8.25¢ refined sugar price, yields a *net* refining margin of only about 86 points. We have, therefore, every reason to expect a further advance in refined sugar prices, as refiners begin more and more to melt their higher-priced raws.

With best regards,

Sincerely yours,
Lamborn & Company, Inc.
(Sgd.) *William D. Lamborn*

DISPOSAL

(Continued from page 387)

they have been shaved than in adjacent stubble or fall-planted canefields.

Cooperative investigations were started in 1945 to determine whether a practical mechanical device could be developed for destroying the sugarcane borer in the cane shoots before the moth emerged in the spring. As a result of this cooperative effort a hammer-type shredder was developed and has been extensively field tested during the past three years (see cover).

The shredding machine illustrated (see cover) is similar in principle of operation to the stubble and stalk pulverizers that had been developed for the destruction of corn and cotton stalks. The experimental shredder was built considerably heavier than most of the convention machines in order to shred the stubble shoots in seed cane areas, as well as in summer-planted sugarcane. The shredder is a tractor pull-type unit and is driven from the rear power-take-off of a three-plow tractor. The operational ground speed of the unit depends on the quantity of material to be shredded. Under conditions of normal summer-plant growth the shredder is operated at 4 to 5 miles per hour. The actual shredding of the cane is accomplished by means of a series of swinging hammers that are mounted on a shredder head. The hammers are mounted in three rows on the hammer assembly and are staggered so as to produce an effective spacing of 3/8-inch apart. The hammers are made of heat-treated steel blades measuring 1/8 inch by 2 by 8 inches. They are operated at a peripheral speed of approximately 6,000 feet per minute. This speed is obtained from the tractor rear power-take-off though a 1 to 2 right-angle gear drive connected to the hammer head assembly by means of multiple V-Belts.

It has been estimated that the shredder requires approximately the same amount of power as a shaver. And adjustment is provided in order that the hammer assembly can be raised and lowered to maintain contact with the ground surface without actually working into the soil. Shredding to the ground surface destroys the borers in the cane shoots. A high percentage of the additional borers that harbor in the first 1 inch of the soil surface are destroyed by the shaving and off-barring operations.

The shredder breaks the material so thoroughly that it leaves practically no whole shoots and very few pieces large enough to contain borers.

During 1947 the shredder was operated in two small experiments comparing rows shredded with similar rows shaved. It was found that the shaved shoots in the experiment conducted on C. P. 34/120 con-

TABLE 1.—Stands and yields from experiments to determine the value of a shredder machine for controlling borers in shoots from summer-planted cane. Averages from four plots of each treatment in three experiments. Material in all plots buried following treatment, as in usual cane culture. Houma, La., 1948.

Variety	Treatment of Shoots	Shoots per acre	Cane per acre	Sucrose	Sugar per acre
		Number	Tons	Percent	Pounds
C. P. 29/320	Shredded and shaved	45,063	25	14.22	4,830
C. P. 29/320	Shredded and shaved	61,992	25	16.47	5,885
C. P. 34/120	Shredded and shaved	58,797	29	14.54	5,897
C. P. 29/320	Shredded, not shaved	35,617	25	13.68	4,554
C. P. 29/320	Shredded, not shaved	46,143	25	16.92	5,914
C. P. 34/120	Shredded, not shaved	47,151	31	14.56	6,201
C. P. 29/320	Shaved	46,089	24	13.96	4,458
C. P. 29/320	Shaved	63,630	27	17.01	6,498
C. P. 34/120	Shaved	57,654	29	15.04	6,176
Average of 3 experiments	Shredded and shaved	55,284	27	15.08	5,537
	Shredded, not shaved	42,970	27	15.05	5,556
	Shaved	55,791	27	15.34	5,711

tained 702 borers per acre and the shredded plots contained none before either was buried. Field data were obtained from one experiment where the shredder machine was used. The plots on which the fall growth was shredded but not shaved gave a yield of 5,598 pounds of sugar per acre and the check plots on which the fall growth was shaved proclaimed 5,526 pounds of sugar per acre. These yield data are in line with the stand counts made in the spring, which indicated that all the plots contained more plants than could be matured.

Three experiments were started early in 1948 to test the shredding machine further as a control for borers overwintering in shoots from summer-planted cane. In one experiment whole cuts of cane were used as plots and each treatment was replicated four times, but in the other two the plots were six rows wide and extended the full length of the cuts. The treatments were applied on February 18 in two of the experiments and on February 26 in the third. The shredded material was examined for borers in 70 random 10-foot samples in one experiment and 20 in another, but no live borers were found. Counts were made in all the experiments between April 29 and May 11 to determine the effect of the treatments on the stand of cane and the plots were harvested December 1 to 10. The treatments, stand counts, and yields are given in table 1 and indicate that the shredding machine reduced the stands and yields of sugar slightly.

During 1949 three large-acreage experiments were conducted to test the shredder machine still further for controlling borers in shoots from summer-planted cane where several acres were treated February 14-16. The total area treated in the three experiments amounted to approximately 30 acres. In these experiments the average population of overwintering borers in the fall growth was reduced from 4,453 per acre to 36 per acre by the shredding treatment. Examination of dead hearts for first-generation borers in the spring growth showed an average of 676 borers per acre in the treated plots and 1,708 per acre in the check plots. In check plots in two of the experiments the cane shoots were shaved while in the third experiment the shoots in the check plots were left untreated.

The infestation counts and yield data for two of the experiments are given in table 2. Although the counts made during the period of July 18-21 averaged 15 percent of the joints bored in the treated plots and 30 in the checks, the counts made at harvestime averaged 43 percent of the joints bored in the treated plots and 31 percent in the checks. However, the plots were only a few cuts wide and it was expected that the infestation would be about the same in all plots by harvesttime. The beneficial effect of the treatment is shown by the fact that the treated plot, with an average of 6,219 pounds of sugar per ton, outyielded the checks by 710 pounds per acre.

TABLE 2. Average infestations and yields in two experiments comparing shredding and nonshredding of shoots from summer-planted cane. Material in all plots buried following treatment as in usual cane culture. Plots harvested between November 22 and December 10, 1949.

Variety	Treatment of Shoots	Joints bored		Cane per acre	Sucrose	Sugar per acre
		July 18-21	Harvesttime			
		Percent	Percent	Tons	Percent	Pounds
C. P. 36/13	Shredded, not shaved	22	45	32.9	14.91	7,216
C. P. 36/13	Not shredded or shaved	35	27	27.8	16.73	7,007
C. P. 36/105	Shredded, not shaved	8	41	25.9	14.64	5,222
C. P. 36/105	Shaved, not shredded	26	36	20.2	14.47	4,010
Average	Shredded, not shaved	15	43	29.4	14.78	6,219
Average	Not shredded	30	31	22.7	15.60	5,509

Summary

The increased acreage of summer-planted cane makes the destruction of overwintering borers in the young cane shoots an important problem. A number of methods have been tried, but in most cases the mortality was too low or the cost too high. Shaving the shoots after February 15 and turning under immediately has given fairly good control when the middles were not plowed out for several weeks.

A shredder-type machine has been tried in experiments for 3 years and it has been found to reduce the borer population in young shoots in summer-planted cane about 95 percent. The machine shreds the material so thoroughly that it leaves practically no whole shoots and very few pieces large enough to contain borers. The rows should be shaved after the fall growth has been shredded to remove the stubs that contain a few borers and to clean the rows of the shredded material, weeds, and any undesirable deposits of soil.

The yield of sugar was not reduced materially by the shredding process in any of the experiments and was considerably greater in the large-scale tests of 1949, even though the stand counts showed some reduction in the number of plants per acre in the plots on which the fall shoots were both shredded and shaved, as compared with those on which the fall growth was shaved or was untreated.

[1] Joint cooperative work between the Bureau of Entomology and Plant Quarantine and the Bureau of Plant Industry, Soils, and Agricultural Engineering.

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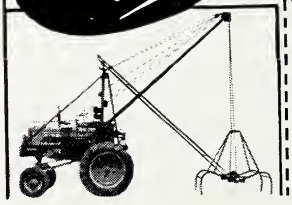

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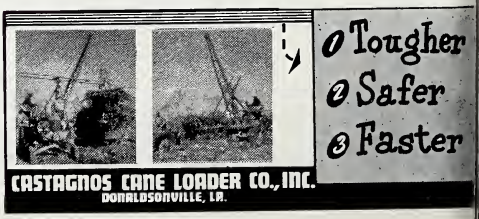

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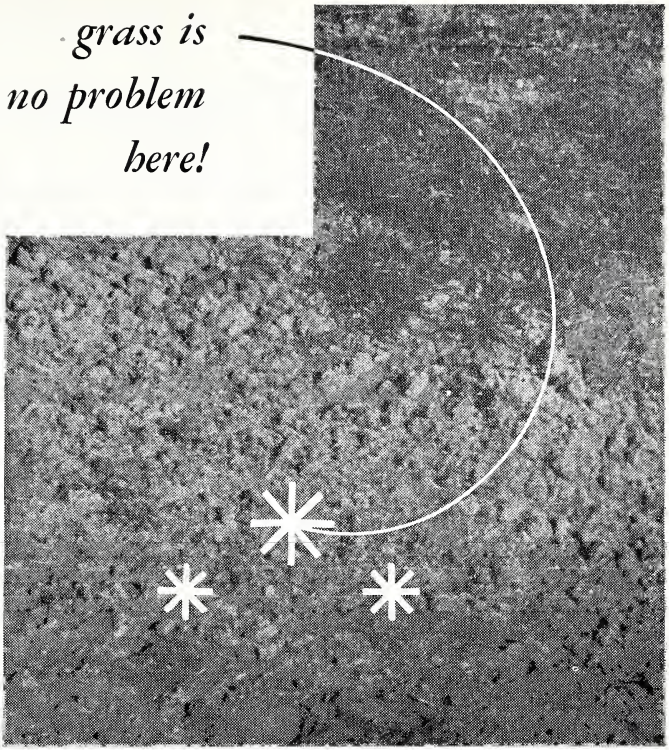

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THE SUGAR BULLETIN

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Announcing The

TWENTY-EIGHTH ANNUAL MEETING

of the

AMERICAN SUGAR CANE LEAGUE

of the

U. S. A., Inc.

THURSDAY, SEPTEMBER 28th, 1950

CLAIBORNE ROOM, ST. CHARLES HOTEL

New Orleans, La.

Meeting Convenes at 1:30 P. M.

At this meeting there will be an election of Officers and Members of the Executive Committee to serve during the ensuing year.

All Members of the League Will Please Consider This as an Official Notice To Attend

THE
SUGAR BULLETIN

414 Whitney Bldg., New Orleans 12

MARCEL J. VOORHIES, Editor

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LOUISIANA 1950 CROP SUGARCANE PRICE DETERMINATION

The U. S. Department of Agriculture announced on August 30, 1950, "fair and reasonable prices" for the 1950 crop of Louisiana sugarcane as required by the Sugar Act of 1948. The prices announced are the minimum prices which a processor-producer in Louisiana must pay to be eligible for Government payments under the Sugar Act of 1948.

The price determination announced recently differs from the 1949 crop determination in the following respects:

1. The basic price per ton of standard sugarcane has been increased from $1.045 to $1.06 for each one cent of the average price of raw sugar.
2. "Trash" has been redefined to eliminate the trash tolerance permitted under the definition contained in the 1949 price determination.
3. The analysis of sucrose and purity is to be made on the basis of sugarcane as delivered by a producer to a processor rather than on the basis of trash-free cane.
4. Provision has been made for the sharing of transportation costs on sugarcane in cases where, because of unusual circumstances, such costs are in excess of the maximum allowances of the mill.

Department officials stated that while the changes made in the determination do not alter the present sharing of sugar proceeds between producers and processors, they are intended to assist the industry in obtaining higher yields of sugar through the delivery of clean, fresh sugarcane. The changes will provide for a more uniform and equitable method of determining the quality of and payments for sugarcane.

Officials also pointed out that the determination specifically calls attention to the fact that failure of mills in Louisiana to report sales of sugar and molasses in accordance with the rules of the Louisiana Sugar Exchange is considered by the Department in determining whether the Exchange prices reflect the true market value of these products.

OFFICIAL CONTRACT

FEDERAL REGISTER
September 2, 1950
Pages 5949-5952

TITLE 7—AGRICULTURE

Chapter VIII—Production and Marketing Administration (Sugar Branch), Department of Agriculture

Subchapter I—Determination of Prices

[Sugar Determination 874.3]

PART 874—SUGARCANE; LOUISIANA 1950 Crop

Pursuant to the provisions of section 301 (c) (2) of the Sugar Act of 1948 (herein referred to as "act"), after investigation, and due consideration of the evidence presented at the public hearing held in Thibodaux, Louisiana, on July 14, 1950, the following determination is hereby issued:

§874.3 *Fair and reasonable prices for the* 1950 *crop of Louisiana sugarcane.* Processor-producers of sugarcane in Louisiana who apply for payments under the act shall be deemed to have complied with the provisions of section 301 (c) (2) of the act with respect to the 1950 crop, if the requirements of this section are met.

(a) *Definitions.* For the purpose of this section, the term:

(1) "Price of raw sugar" means

the price of 96° raw sugar quoted by the Louisiana Sugar Exchange, Inc.; except that if the Director of the Sugar Branch determines that such price does not reflect the true market value of sugar, because of inadequate volume, failure to report sales in accordance with the rules of such Exchange or other factors, he may designate the price to be effective under this section.

(2) "Price of blackstrap molasses" means the price per gallon of blackstrap molasses quoted by the Louisiana Sugar Exchange, Inc.; except that if the Director of the Sugar Branch determines that such price does not reflect the true market value of blackstrap molasses because of inadequate volume, failure to report sales in accordance with the rules of such Exchange or other factors, he may designate the price to be effective under this section.

(3) "Trash" means green or dried leaves, loose sugarcane tops, attached sugarcane tops at or above the green leaf roll, dirt and all other extraneous material which is representative of the quantity of sugarcane from which the sample for trash determination is taken.

(4) "Salvage sugarcane" means sugarcane containing either less than 9.5 percent sucrose in the normal juice or less than 68 purity in the normal juice.

(5) "Actual sugarcane" means sugarcane as delivered by a producer to a processor-producer.

(6) "Standard sugarcane" means sugarcane, free of trash, containing 12 percent sucrose in the normal juice with a purity of at least 76.50 but not more than 76.99.

(b) *Basic price.* (1) The basic price for standard sugarcane shall be not less than $1.06 per ton for each one cent of the average price of raw sugar determined in accordance with whichever of the following options is agreed upon:

(i) The simple average of the daily prices of raw sugar for the week in which the sugarcane is delivered; or

(ii) The simple average of the weekly prices of raw sugar for the period October 6, 1950 (or the Friday within the first week of actual trading), through January 25, 1951. *Provided,* That the average price of raw sugar as determined under subdivisions (i) or (ii) of this subparagraph may be reduced by not more than the following:

(a) 0.065 cent for mills located north of Bayou Goula between the Atchafalaya and Mississippi Rivers and southeast of New Iberia west of the Atchafalaya River; or

(b) 0.10 cent for mills located north and west of New Iberia west of the Atchafalaya River.

(2) The basic price for salvage sugarcane shall be as agreed upon between the processor-producer and the producer.

(c) *Conversion of actual sugarcane to standard sugarcane.* Except for salvage sugarcane, actual sugarcane shall be converted to standard sugarcane as follows:

(1) By deducting the weight of trash from the combined weight of sugarcane and trash delivered;

(2) By multiplying the net quantity of sugarcane determined pursuant to subparagraph (1) of this paragraph by the applicable quality factor in the following table:

Percent sucrose in normal juice[1]	Standard sugarcane quality factor
9.5	0.6
10.0	.7
10.5	.8
11.0	.9
11.5	.9
12.0	1.0
12.5	1.0
13.0	1.1
13.5	1.1
14.0	1.2
14.5	1.2

[1] Intermediate points within the scale are to be in proportion. Points above 14.5 percent sucrose in normal juice are to be in proportion to the immediate preceding interval.

and

(3) By multiplying the adjusted quantity determined pursuant to subparagraph (2) of this paragraph by the applicable purity factor in the following table:

Purity of normal juice		Standard sugarcane purity factor[1] (percent sucrose in normal juice)															
		At least 9.50	9.70	9.90	10.10	10.30	10.50	11.00	11.50	12.00	12.50	13.00	13.50	14.00	14.50	15.00	15.50
At least—	But not more than—	But not more than 9.69	9.89	10.09	10.29	10.49	10.99	11.49	11.99	12.49	12.99	13.49	13.99	14.49	14.99	15.49	15.99
68.00	68.24	1.000	0.989	0.978	0.967	0.956	0.945	0.936	0.929	0.922	0.915	0.908	0.901	0.894	0.887	0.880	0.873
68.25	68.49	1.005	.993	.982	.971	.960	.949	.941	.934	.927	.920	.913	.906	.899	.892	.885	.873
68.50	68.99	1.010	.998	.987	.976	.965	.954	.946	.939	.932	.925	.918	.911	.905	.899	.893	.887
69.00	69.49	1.015	1.003	.992	.981	.970	.959	.950	.943	.936	.929	.922	.915	.909	.903	.897	.891
69.50	69.99	1.021	1.009	.997	.986	.975	.964	.955	.948	.941	.934	.927	.920	.914	.908	.902	.896
70.00	70.49	1.025	1.013	1.001	.990	.979	.968	.960	.953	.945	.938	.931	.924	.918	.912	.906	.900
70.50	70.99	1.030	1.018	1.006	.995	.984	.973	.965	.958	.950	.943	.936	.929	.923	.917	.911	.905
71.00	71.49	1.035	1.023	1.011	.999	.988	.977	.969	.962	.954	.947	.940	.933	.927	.921	.915	.909
71.50	71.99	1.040	1.028	1.016	1.004	.993	.982	.974	.966	.959	.951	.945	.938	.932	.926	.920	.914
72.00	72.49	1.045	1.033	1.021	1.009	.998	.987	.978	.970	.963	.955	.949	.942	.936	.930	.924	.918
72.50	72.99	1.050	1.038	1.026	1.014	1.003	.992	.983	.975	.967	.960	.954	.947	.940	.934	.928	.922
73.00	73.49	1.055	1.043	1.031	1.019	1.007	.996	.987	.979	.971	.964	.958	.951	.944	.938	.932	.926
73.50	73.99	1.060	1.048	1.036	1.024	1.012	1.000	.991	.984	.976	.968	.962	.955	.948	.942	.936	.930
74.00	74.49	1.065	1.052	1.040	1.028	1.016	1.004	.995	.988	.980	.972	.966	.959	.952	.946	.940	.934
74.50	74.99	-----	1.057	1.044	1.032	1.020	1.008	1.000	.992	.984	.977	.970	.963	.956	.950	.944	.938
75.00	75.49	-----	1.062	1.049	1.036	1.024	1.012	1.004	.996	.988	.981	.974	.967	.960	.954	.948	.942
75.50	75.99	-----	-----	1.054	1.041	1.028	1.016	1.008	1.000	.992	.985	.978	.971	.964	.958	.952	.946
76.00	76.49	-----	-----	1.059	1.046	1.033	1.020	1.011	1.004	.996	.988	.981	.974	.967	.961	.955	.949
76.50	76.99	-----	-----	-----	1.051	1.038	1.025	1.015	1.008	1.000	.992	.985	.978	.971	.965	.959	.953
77.00	77.49	-----	-----	-----	1.054	1.041	1.028	1.019	1.011	1.004	.996	.989	.981	.975	.969	.963	.957
77.50	77.99	-----	-----	-----	-----	1.045	1.032	1.023	1.015	1.008	1.000	.993	.985	.979	.973	.967	.961
78.00	78.49	-----	-----	-----	-----	1.049	1.035	1.027	1.019	1.011	1.003	.996	.989	.982	.976	.970	.964
78.50	78.99	-----	-----	-----	-----	-----	1.039	1.031	1.023	1.015	1.007	1.000	.993	.986	.980	.974	.968
79.00	79.49	-----	-----	-----	-----	-----	1.042	1.035	1.026	1.018	1.010	1.003	.996	.989	.983	.977	.971
79.50	79.99	-----	-----	-----	-----	-----	-----	1.039	1.030	1.022	1.014	1.007	1.000	.993	.987	.981	.975
80.00	80.49	-----	-----	-----	-----	-----	-----	1.043	1.033	1.025	1.017	1.010	1.003	.996	.990	.984	.978
80.50	80.99	-----	-----	-----	-----	-----	-----	-----	1.037	1.029	1.021	1.014	1.007	1.000	.994	.988	.982
81.00	81.49	-----	-----	-----	-----	-----	-----	-----	1.040	1.032	1.024	1.017	1.010	1.003	.997	.991	.985
81.50	81.99	-----	-----	-----	-----	-----	-----	-----	-----	1.036	1.028	1.021	1.014	1.006	1.000	.994	.988
82.00	82.49	-----	-----	-----	-----	-----	-----	-----	-----	1.039	1.032	1.024	1.017	1.009	1.003	.997	.991
82.50	82.99	-----	-----	-----	-----	-----	-----	-----	-----	-----	1.035	1.027	1.020	1.013	1.007	1.000	.995
83.00	83.49	-----	-----	-----	-----	-----	-----	-----	-----	-----	1.038	1.030	1.023	1.016	1.010	1.004	.998
83.50	83.99	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	1.033	1.027	1.019	1.013	1.007	1.000
84.00	84.49	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	1.036	1.030	1.022	1.016	1.010	1.004
84.50	84.99	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	1.033	1.025	1.019	1.013	1.007
85.00	85.49	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	1.028	1.022	1.016	1.010

[1] Factors applicable to higher sucrose and purity of the normal juice than shown in this table shall be determined by the same method of calculation used to compute the factors specified and shall be furnished by the Louisiana State Office of the Production and Marketing Administration, Baton Rouge, Louisiana, upon request.

(d) *Molasses payment.* Except for salvage sugarcane there shall be paid for each ton of actual sugarcane, minus trash, an amount equal to the product of 6½ and one-half of the average price per gallon of blackstrap molasses in excess of 6 cents. The average price of blackstrap molasses shall be either the simple average of the daily prices for the week in which the sugarcane is delivered or the simple average of the weekly prices of blackstrap molasses for the period October 6, 1950 (or the Friday within the first week of actual trading) through January 26, 1951, as agreed upon between the processor-producer and the producer.

(e) *General.* (1) The sucrose and purity of the normal juice shall be determined by an acceptable method of analysis on actual sugarcane.

(2) Because of decreased boiling house efficiency deductions may be made from the payment for frozen sugarcane accepted by the processor-producer provided such deductions are at rates not in excess of 1.5 percent of the payment, computed without regard to the molasses payment, for each 0.1 cc. of acidity above 2.50 cc. of N/10 alkali per 10 cc. of juice but not in excess of 4.75 cc. (intervening fractions are to be computed to the nearest multiple of 0.05 cc.). Frozen sugarcane testing in excess of 4.75 cc. of acidity shall be considered as having no value. Sugarcane shall not be considered as frozen, even after being subjected to freezing temperature, unless and until there is evidence of damage having taken place because of the freeze, such evidence to be certified by the Louisiana State Office of the Production and Marketing Administration.

(3) Costs of hoisting and weighing sugarcane, which were absorbed by the processor-producer for the 1949 crop, shall be absorbed by the processor-producer for the 1950 crop; but nothing in this subparagraph shall be construed as prohibiting negotiations with respect to the level of such absorptions, subject, upon appeal, to review by the Director of the Sugar Branch.

(4) Allowances made to producers for transporting sugarcane from the customary delivery points to the mill which were made by the processor-producer for the 1949 crop, shall be made by the processor-producer for the 1950 crop: *Provided,* That nothing in this subparagraph shall be construed as requiring the processor-producer to make allowances to producers in excess of the actual costs or rates charged by a commercial carrier for the customary method of transportation: *Provided, further,* That where the only available practicable means of transportation are rail facilities and the distance to the nearest mill is in excess of 50 miles or where, because of unusual circumstances, the cost of transporting sugarcane is in excess of customary allowances, such costs may be shared by the processor-producer and the producer by agreement, subject, upon appeal, to review by the Director of the Sugar Branch.

(5) If a processor-producer and to producers delivering sugarcane to such processor-producer agree upon a plan for the hiring of inspectors whose duties shall be (i) to inspect fields of sugarcane, suggest proper methods of harvesting, and obtain adherence to cutting and delivery schedules, and (ii) to determine the trash content of all sugarcane delivered to a processor-producer, and, if the control of such inspectors is exercised jointly by the processor-producer and producers or by a general committee of processors and producers, there may be deducted from the price per ton of standard and salvage sugarcane an amount equal to one-half of the cost of such inspection but not in excess of 1½ cents per ton of such sugarcane. Such deductions may not be made until a statement in writing setting forth the proposed plan jointly signed by authorized

representatives of producers and processors has been filed with and approved by the Louisiana State Office of the Production and Marketing Administration.

(6) The processor-producer shall not reduce the return from the 1950 crop of Louisiana sugarcane to the producer below those determined herein through any subterfuge or device whatsoever.

Statement of Bases and Considerations

(a) *General.* The foregoing determination provides fair and reasonable prices to be paid by a processor-producer (i. e., a producer who is directly or indirectly a processor of sugarcane — hereinafter referred to as "processor") for sugarcane of the 1950 crop purchased from other producers. It prescribes the minimum requirements with respect to prices which must be met as one of the conditions for payment under the act. In this statement the foregoing determination, as well as determinations for prior years will be referred to as "price determination", identified by the crop year for which effective.

(b) *Requirements of the act.* In determining fair and reasonable prices, the act requires that public hearings be held and investigations made. Accordingly, a public hearing was held in Thibodaux, Louisiana, on July 14, 1950, at which time interested parties presented testimony with respect to fair and reasonable prices for the 1950 crop of sugarcane. It should be noted that for the second consecutive year the grower and processor members of the Louisiana Grower - Processor Committee departed from their usual practice of making joint recommendations with respect to the terms of purchase contracts and submitted separate recommendations for the 1950 crop. In addition, investigations have been made of the conditions relating to the sugar industry in Louisiana. In this price determination consideration has been given to the testimony presented at the hearing and to information resulting from the investigations.

(c) *Background.* Determinations of fair and reasonable prices for sugarcane in Louisiana have been issued for each crop beginning with the 1937 crop. The 1937 price determination approved the basic pricing structure contained in sugarcane purchase contracts agreed upon between producers and processors. From that time until the 1949 crop, price determinations have continued in effect, with only minor modifications, the historic basic pricing structure.

In 1949, major changes were made in the price determination for Louisiana. These changes, which are summarized below, were aimed at improving the quality of sugarcane delivered to processors by providing a higher base price for clean, high sugar-yielding sugarcane and a more adequate system of paying premiums and discounts for sugarcane of varying qualities. These changes included:

(1) The basic price per ton of standard sugarcane was increased from $1.03 to $1.045 for each one cent of the raw sugar price. Freight allowances equal to higher cost of freight on raw sugar to New Orleans were provided for mills located in high cost freight districts. Formerly, processors were compensated for the differences in freight by the use of contracts with varying standards of sugarcane quality.

(2) Standard sugarcane was redefined as fresh, trash-free sugarcane with normal juice testing 12 percent sucrose and 76.5 to 76.99, inclusive, purity.

(3) The definition of salvage sugarcane was revised to include sugarcane, the normal juice of which contained less than 9.5 percent sucrose or less than 68 purity.

(4) Trash was defined to include green or dried leaves which may be removed with a cane knife in a manner similar to hand stripping

under field conditions, loose sugarcane tops, attached sugarcane tops at or above the green leaf roll, dirt, and all other extraneous material.

(5) The provisions for molasses payments were revised to permit participation by producers in returns from blackstrap molasses above the price of 6 cents per gallon rather than 8 cents per gallon as in previous price determinations.

(6) Deductions for acidity and frozen sugarcane were revised to recognize the higher acidities in new varieties of sugarcane.

(7) The analysis of the sucrose and purity of the normal juice were required to be made on the basis of trash-free sugarcane.

(8) Authority was provided for the sharing by producers and processors of the cost of a plan for joint supervision over inspecting, cutting and delivering sugarcane and of determining the trash content of sugarcane.

(d) 1950 *price determination.* The 1950 price determination differs from the 1949 price determination in the following respects:

(1) *Basic price.* The basic price per ton of standard sugarcane has been increased from $1.045 to $1.06 for each one cent of the average price of raw sugar.

(2) *Trash.* Trash has been redefined to eliminate the trash tolerance permitted under the definition contained in the 1949 price determination.

(3) *Sucrose and purity test.* The analysis of sucrose and purity is to be made on the basis of actual sugarcane (i. e., as delivered by a producer to a processor) rather than on the basis of sugarcane free of trash as required in 1949.

(4) *Price of raw sugar and blackstrap molasses.* The definitions of the "price of raw sugar" and the "price of blackstrap molasses" have been clarified by specifically mentioning one of the "other factors" which is considered by the Department in determining whether the market prices of sugar and blackstrap molasses as reported by the Louisiana Sugar Exchange, Inc., reflect the true market value of these products. This factor is the failure of mills in Louisiana to report sales of sugar and molasses in accordance with the rules of such Exchange.

(5) *Transportation.* The provision for transportation allowances has been amended to cover those cases where, because of unusual circumstances, transportation costs are in excess of the maximum allowance of the mill.

As previously mentioned, the 1949 price determination contained many fundamental changes from prior determinations, all of which were directed at improving the economic condition of the industry. While marked improvements were made during the 1949 crop, the operations under the determination for that crop alone do not furnish an adequate basis on which to evaluate fully the effects of the changes on the industry under average operating conditions. For that reason and others mentioned herein, the changes made in the 1950 price determination are changes in the mechanics of determining prices. These changes will return to producers for standard sugarcane about the same percentage of total returns from sugar as they have received during the past five years.

Prior to 1949 it had become the general practice of the industry to accept sugarcane containing 3 percent trash as clean sugarcane. This practice together with other practices associated with mechanical harvesting, which had their inception during World War II, were primarily responsible for the deterioration of the quality for sugarcane delivered to processors. The effect of these practices contributed greatly to the reduction in the quantity of raw sugar recovered from a ton of sugarcane. In an effort to assist in the correction of these practices, the 1949 price determination provided for deductions

of trash in excess of that normally delivered in the prewar period when sugarcane was hand cut, and provided a scale of premiums and discounts depending on the purity of normal juice which was considered a measure of the freshness of cane. Also, the pricing factor in the 1949 price determination was increased $0.015 as an incentive for the delivery of clean, fresh sugarcane. The increase in the pricing factor compensated in part for the partial elimination of the trash tolerance. It was found in practice, however, that the trash definition in the 1949 price determination was difficult to apply uniformly and equitably and resulted in numerous problems.

In this determination trash has been redefined to allow for no tolerance and the pricing factor increased to $1.06 per one cent of raw sugar price to compensate fully for the elimination of the former 3 percent trash tolerance.

During the 1949 crop season, it was also found that the requirements of testing sucrose and purity on the basis of clean sugarcane did not return to the producers who delivered clean, fresh sugarcane the maximum benefits to which they were entitled and, conversely, did not penalize to the extent it should, producers who delivered trashy, stale sugarcane. The change in the 1950 price determination to the making of sucrose and purity tests on an actual sugarcane basis will gear payments for sugarcane more closely to the quality of the sugarcane delivered by individual producers.

In a brief filed by the processor members of the Grower-Processor Committee, it was recommended that a provision be incorporated in the 1950 price determination which would require all mills to report sales of quotable contract units of blackstrap molasses to the Louisiana Sugar Exchange, Inc., in accordance with the rules of that Exchange. Although there is no authority under the act to require the reporting of data to a third person, the right is reserved in the determination to designate the price to be effective, in the event it is determined that the prices reported by the Exchange are not a true reflection of the market value of sugar and blackstrap molasses. One of the reasons under which this right would be exercised would be the failure of mills to report sales to the Exchange.

The revision in the provision covering transportation allowances was made to provide for greater flexibility in determining the division of transportation costs between the processor and producer. This change will permit the processor and producer to agree upon the sharing of transportation costs in cases where such costs are in excess of the maximum allowances of the mill.

At the public hearing, recommendations were made by producer and processor representatives to change the pricing factor and the sharing of returns from molasses. These recommendations have been examined carefully in the light of the results of a study of costs, returns, profits and related factors of the Louisiana industry for the crop years 1946 through 1949 conducted by the Department in 1950. On the basis of this examination there appears to be no basis, under the conditions expected to prevail during the 1950 crop, on which to alter the present sharing level.

In addition, a producer representative recommended at the public hearing changes in the purity premiums and discounts, trash deductions and penalties for frozen sugarcane. With respect to purity, a study was made by the Department of the relationships of actual purities at various sucrose levels for the 1949 crop to those prescribed in the 1949 price determination. Moreover, a comparison was made of the normal juice sucrose and purity tests as reported by processors for the last 13 crops with comparable sucrose and purity levels in the 1949

price determination. Although the study made of the 1949 crop operations indicated that, at certain levels of sucrose, purities were somewhat lower than those in the 1949 price determination, the results of that crop alone do not afford an adequate basis for effecting adjustments. The comparison made of the results of the last 13 crops indicates that there was almost no difference in the average of the actual purity and the corresponding figure in the 1949 price determination. With respect to trash, it was recommended that no deduction be made for sugarcane containing 3 percent or less of trash with a descending trash tolerance for sugarcane containing more than 3 percent trash. This recommendation has not been adopted as it is considered a backward step rather than a constructive one. Instead of correcting the delivery of sugarcane of undesirable qualities, it probably would return the industry to a situation it has tried for several years to correct. The penalty table for frozen sugarcane was revised in 1949, based on tests conducted by the U. S. Department of Agriculture Experiment Station in Houma, Louisiana. Since no freeze has occurred following the adoption of the revised scale, it has not been possible to test the validity of this scale. The recommendation, therefore, has not been adopted.

Accordingly, I hereby find and conclude that the foregoing price determination is fair and reasonable and will effectuate the price provisions of the act.

(Secs. 301, 403, 61 Stat. 929, 932; 7 U. S. C. Sup. 1131, 1153)

Issued this 30th day of August 1950.

[Seal] CHARLES F. BRANNAN,
Secretary of Agriculture.

[F. R. Doc. 50-7747; Filed, Sept. 1, 1950; 8:52 a. m.]

ANNUAL SUGAR PLANTERS' FIELD DAY SEPTEMBER 19, 1950

The Annual Field Day of the Louisiana Sugar Planters will be held in Baton Rouge, La., on Tuesday, September 19th, and Dr. W. G. Taggart, who is the head of the Louisiana State Experiment Station, has invited everyone interested in the Louisiana sugar industry to attend the activities which will begin at 9:30 in the morning at the Agronomy-Horticulture Building on the Louisiana State University campus.

The morning program of the Field Day will consist of short progress reports from the members of the Louisiana State Experiment staff, and in the afternoon there will be a field demonstration of drainage projects on the St. Delphine Plantation just south of Addis, La.

Mr. I. L. Saveson, Project Supervisor of the Drainage For Sugar Cane Land Experiment, has supplied us with the program of the afternoon demonstration and this is printed below.

Foreword

The primary purpose of this afternoon's program is to demonstrate some of the developments of the project — DRAINAGE FOR SUGAR CANE LAND — which is a joint undertaking of the United States Department of Agriculture, Soil Conservation Service Research and the Louisiana Agricultural Experiment Station.

We of the Soil Conservation Service Research appreciate the opportunity of participating in the Louisiana Sugar Planters Field Day.

We also wish to welcome to the demonstration of the Soil Conservation District Supervisors of Louis-

(Continued on page 414)

SENATOR ELLENDER WRITES THE C. C. C.

The following letter from Senator Allen J. Ellender to Mr. Ralph S. Trigg, President of the Commodity Credit Corporation was written on August 25, 1950.

Mr. Ralph S. Trigg, President
Commodity Credit Corporation
Department of Agriculture
Washington, D. C.

Dear Mr. Trigg:

The domestic sugar industry is very much concerned about the action of the Department of Agriculture in the recent acquisition of the 1950 Cuban surplus sugar. Section 201 of the Sugar Act of 1948 provides as follows, with regard to protection for the maintenance and welfare of the domestic sugar industry:

> "and, in order that such determinations shall be made so as to protect the welfare of consumers and of those engaged in the domestic sugar industry by providing such supply of sugar as will be consumed at prices which will not be excessive to consumers and which will fairly and equitably maintain and protect the welfare of the domestic sugar industry, the Secretary, in making any such determination, in addition to the consumption, inventory, population, and demand factors above specified and the level and trend of consumer purchasing power, shall take into consideration the relationship between the prices at wholesale for refined sugar that which result from such determination and the general cost of living in the United States as compared with the relationship between prices at wholesale for refined sugar and the general cost of living in the United States obtaining during 1947 prior to the termination of price control of sugar as indicated by the Consumers' Price Index as published by the Bureau of Labor Statistics of the Department of Labor."

The industry contends that the provisions of the Sugar Act are sufficient unto themselves and are broad enough to cope with any emergency. The purpose of this Act is to protect the welfare of the consumer and to maintain the domestic sugar industry under the provisions of Section 201.

I am given to understand that the purchase of the Cuban surplus sugar was made under the supposed authority of the Commodity Credit Corporation Act. If that is so, then it seems to me that the Department has used the CCC Act for a purpose directly contrary to the intent of that legislation. While the purpose of the CCC Act is to uphold the price of farm commodities, it clearly appears that in this instance you have deliberately used it to depress the price of sugar.

I am unalterably opposed to the employment of doubtful powers of one agency of the Government for the purpose of destroying or undermining the clearly defined powers and duties of another agency.

I am, therefore, writing to respectfully request that you cite to me, not in general terms, but the specific provisions of the CCC Act, or any other law, under which you can justify your action in the acquisition of the 1950 Cuban surplus sugar.

With kind regards, I am

Sincerely,

"ALLEN J. ELLENDER"
U. S. Senator

BLACKSTRAP UNDER EXPORT CONTROL

Effective September 15, inedible molasses will be placed on the export control "Positive List" of commodities requiring validated licenses for export to all destinations except Canada, the Office of Industry and Commerce, U. S. Department of Commerce has announced.

This action is being taken to prevent undue foreign drain on domestic supplies of inedible molasses, used as a raw material in the production of industrial alcohol, officials said.

Exports of inedible molasses valued at less than $250 will not require validated licenses under the action announced today except for shipment to "Sub-group A" countries: (Alabania, Bulgaria, China, Czechoslovakia, Estonia, Russian Zone of Germany, Hungary, Latvia, Lithuania, Manchuria, North Korea, Poland and Danzig, Rumania, and the U.S.S.R.).

Licenses for exports of inedible molasses granted by OIC will remain valid for the standard period of six months.

Inedible molasses was removed from export control in the fall of 1948. Types of molasses covered by the Recontrol Action are classified under "Schedule B" number 162910, and include cane blackstrap, final beet molasses and hydrol.

PROGRESS REPORT OF BLACKSTRAP MOLASSES MARKETING PROGRAM

State—Louisiana
Project No.—RM-430-1
Code—"D"

1. Act Title: TITLE II, Section 204 (b).

2. Line project title: Blackstrap Molasses Marketing Program.

A. Commodity: Blackstrap Molasses

(1) The problem to be solved: Blackstrap molasses production in Louisiana from the 1949-50 sugar cane crop was estimated at approximately 33 million gallons. This was about equal to last season's production, but well above the previous 10-year (1938-47) average of 25 million gallons. The season's average price of 5.64 cents per gallon for blackstrap for the 1949-50 crop was the lowest since 1939. With blackstrap production remaining relatively high against continually declining prices, Louisiana processors were naturally concerned over the future of the blackstrap markets. Prior to 1948 distilleries afforded one of the best markets for blackstrap; however, with the production of synthetic alcohol by petroleum refineries, much of this market has been lost. Faced with high production, low prices and loss of markets, the sugar industry recognized the need for a constructive marketing program. For a marketing program to be effective, it was generally believed that it should be designed to include price stabilization and the location of new markets as the primary objectives.

(2) What was attempted and methods used: There was little doubt that growers, processors and others having an interest in the sugar industry were insufficiently informed as to current market news and related data on blackstrap. Without some knowledge of prices, supply, demand and trends, processors

and dealers had no basis upon which price stabilization might be founded. On any particular day, one processor may get a reasonably fair price for blackstrap while another a relatively poor price. The price the processor did receive for his molasses would depend largely on his need to sell (because of insufficient storage facilities) or his bargaining ability. Further research and investigation was needed along such lines as molasses forms and uses, storage, transportation and distribution.

To obtain information covering the over-all program, the following procedures are followed: contact is maintained (by personal interview, mailed questionnaires, letters and similar means) with growers, processors, distributors, feed dealers, livestock feeders, county agents, agricultural colleges and others in allied fields. Other sources of information include newspapers, feed magazines, books and journals, and agricultural releases from the United States Department of Agriculture in Washington.

After blackstrap data are collected and assembled from the various mentioned sources, reports are made to the sugar industry (as well as to others interested in blackstrap) in the nature of articles in local newspapers, market bulletins, mimeographed letters, sugar publications and printed bulletins. In addition to this, a weekly report is made to the industry in the form of a market release dealing with prices, supply, demand and related blackstrap data. Oral reports are also made at regular industry meetings whenever an important matter justifies such.

(3) Accomplishments and evaluations and evaluations of accomplishments:

(4) Since the coordinator of the Blackstrap Molasses Marketing Program makes no sales, the actual progress of the program is difficult to measure in terms of dollars and cents. The principal duties of the coordinator being the gathering and disseminating of statistical data in connection with prices, sales, demand, storage, etc., accomplishments must necessarily be evaluated on the basis of what such information means to the industry as a whole.

The results gained so far can best be summed up by saying that the industry is better informed now than before on problems relating to blackstap marketing. This means that processors are in a more favorable position to make sound appraisals of issues connected with their business.

Surveys and studies have revealed a number of pertinent facts that are useful to the industry in management or in consideration of policy changes. Some of these are: the inadequacy of the combined factory storage facilities for blackstrap; the supply of blackstrap at a given period; the expected production of blackstrap for the approaching season; the trends in blackstrap marketings; the results of experiment station and individual experiments with blackstrap feeding; and the estimated Cuban blackstrap supply situation.

Printed matter, disseminated among livestock producers, dealing with the value of feed

molasses will no doubt tend to increase the demand for this product for feeding purposes.

Samples of printed matter and cooperative articles appearing in newspapers, market bulletins, sugar bulletins, etc., and regular reports to the industry accompany this report.

Realizing the need for a broader coverage and consequently more reliable market information on blackstrap, the coordinator is cooperating with the Sugar Branch in preparing preliminary reports preparatory to the establishment of a market news service comparable to that already in force for many of the other leading agricultural commodities in the United States.

(5) Cooperative relations: Among the agencies and individuals cooperating to make this program a successful one are: sugar cane growers and processors; blackstrap brokers, distributors and dealers; county agents, individual livestock men and dairymen; Louisiana Agricultural Experiment Station and Extension Service; individual members and representatives of the Sugar Cane League; the Louisiana Department of Agriculture and the United States Department of Agriculture.

FIELD DAY

(Continued from page 410)

iana and Operations Personnel of the Soil Conservation Service.

I. L. SAVESON
Project Supervisor
U. S. D. A. — S. C. S.

Acknowledgments

The project wishes to extend its appreciation to the following commercial cooperators in helping with this demonstration.

The Buckeye Division of Garwood Mfg. Company

The Boyce Harvey Machinery Inc.

The Eversman Manufacturing Company

The Louisiana Anthony Equipment Company

The Southern Equipment and Tractor Company

The Thompson Machinery Company

Field Drainage Demonstrations

1. Observation on recent precision graded experimental areas for drainage. This area was completely rehabilitated by filling the ditches and grading the entire area. Scrapers were used to remove spoil banks and for filling in old depressions. Dirt from the spoil banks was used for filling in depressions. The entire area was smoothed with a land leveler. The ditches were cut with the experimental wheel trencher.

2. Demonstration of recently developed wheel type trencher for cutting lateral ditches and spreading the earth. This machine was developed by the Buckeye Trencher Company with the project's cooperation. On test runs this machine dug from

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10 to 18 feet of ditch per minute depending on soil and trash conditions.

3. Demonstration of the use of land levelers for smoothing of sugar cane land and for turtlebacking. The project has been experimenting this season with land levelers to eliminate pockets, since the presence of small pockets in cane fields materially effect the yields. Land levelers are precision grading tools used in conditioning land for irrigation.

4. Demonstration of the use of bulldozers, motor graders, and scrapers for turtlebacking. The purpose of this phase of the program is to answer a number of questions asked by sugar planters regarding the use of equipment in turtlebacking land.

5. Demonstration of newly developed mole drainer. Machines to install mole drains under Louisiana conditions are not available therefore this machine has been developed. The mole drainer experimental work has been delayed due to the machine limitations.

6. Ditch bank mowing. Demonstration of new principle mower. The mowing and maintaining of drainage ditches is a nationwide problem due to inadequate mowers. The new principle mower developed and demonstrated by the Thompson Machinery Company should materially aid in ditch maintenance.

Pertinent Project Information

This year completes the sixth year of experimental work with turtlebacking and lateral ditching.

105 acres of turtlebacked land under test averaged 5.84 standard tons increase.

6 inches of crown per 100 feet should be adequate slope.

Pockets 2 inches and over on an area planted to 36-13 cane reduced the yield 7 tons on plant cane and 3½ tons on first year stubble where one-half of the area was pocketed.

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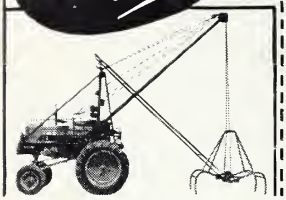

This new loader's boom has a hydraulic swing, with adjustable working radius. It loads 350 to 450 tons per 9-hour day, 800 pounds per lift. Operated by two men, one driver and one operator, its power is direct from front end of Allis-Chalmers (UC), Minneapolis-Moline (UTC), Case (DCS) and International Harvester (MV or MDV).

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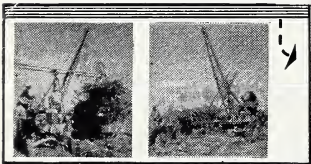

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Hibernia Bank Building
New Orleans, La.

GAY SULLIVAN & CO., INC.
P. O. Box 378
New Orleans 9, La.

HARDIN BAG & BURLAP CO., INC.
1050 Constance Street
New Orleans, La.

HARRY L. LAWS & CO., INC.
126 Carondelet Street
New Orleans 12, La.

THE HIBERNIA NATIONAL BANK
New Orleans, La.

LAMBORN & COMPANY, INC.
Whitney Building
New Orleans, La.

LEBOURGEOIS BROKERAGE CO.
823 Perdido Street
New Orleans, La.

MOLASSES PRODUCTS, INC.
532-534 Audubon Bldg.
New Orleans 16, La.

THE NATIONAL BANK OF COMMERCE
New Orleans, La.

PENICK & FORD LTD., INC.
Canal Bank Building
New Orleans, La.

E. A. RAINOLD, INC.
456 Marine Building
New Orleans 12, La.

ESSO STANDARD OIL COMPANY
(Louisiana Division)
P. O. Box 1250 New Orleans 10, La.

STANDARD SUPPLY & HARDWARE CO., INC.
822 Tchoupitoulas St.
New Orleans, La.

STATE AGRICULTURAL CREDIT CORP., INC.
837 Whitney Building
New Orleans, La.

THORNTON GRAB & DERRICK WORKS, INC.
Jeanerette, La.

WHITNEY NATIONAL BANK
New Orleans, La.

Date Due